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EDEXCEL GCSE (9-1) MATHS: QUESTIONS BY TOPIC

## Constructions, Loci, Congruence & Similarity (G2)

**GCSE (9-1) Mathematics (1MA1) · Foundation tier**

36 questions · 101 marks · Mark schemes included

Past papers June 2017 - June 2025 · 3 sub-topics

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**HOW TO USE THIS BOOKLET**

Questions are grouped by sub-topic and run from the lowest to the highest mark tariff, then oldest paper first.

Click any row below to jump straight to that sub-topic or question.

On every question page, click ANSWER in the top-right corner to jump to its mark scheme; < QUESTION brings you back.

A gold bar in the left margin marks exactly where the question sits on the original page.

Diagrams, graphs, grids and tables are printed exactly as they appear in the original papers.

Each question is filed under its main topic; longer questions may also test skills from other topics.

| QUESTION                                            | SOURCE                      | MARKS            | PAGE      |
|-----------------------------------------------------|-----------------------------|------------------|-----------|
| <b>G2a CONSTRUCTIONS, LOCI &amp; SCALE DRAWINGS</b> |                             | 19 Qs · 53 marks | <b>3</b>  |
| 1. <b>Q23</b>                                       | GCSE Paper 2F June 2025     | 1                | <b>4</b>  |
| 2. <b>Q8</b>                                        | GCSE Paper 2F November 2018 | 2                | <b>5</b>  |
| 3. <b>Q23</b>                                       | GCSE Paper 1F November 2019 | 2                | <b>6</b>  |
| 4. <b>Q17</b>                                       | GCSE Paper 3F November 2020 | 2                | <b>7</b>  |
| 5. <b>Q5</b>                                        | GCSE Paper 2F November 2021 | 2                | <b>8</b>  |
| 6. <b>Q7</b>                                        | GCSE Paper 1F November 2023 | 2                | <b>9</b>  |
| 7. <b>Q22</b>                                       | GCSE Paper 1F November 2023 | 2                | <b>10</b> |
| 8. <b>Q19</b>                                       | GCSE Paper 3F November 2024 | 2                | <b>11</b> |
| 9. <b>Q16</b>                                       | GCSE Paper 2F June 2017     | 3                | <b>12</b> |
| 10. <b>Q15</b>                                      | GCSE Paper 2F November 2019 | 3                | <b>13</b> |
| 11. <b>Q16</b>                                      | GCSE Paper 2F June 2022     | 3                | <b>14</b> |
| 12. <b>Q8</b>                                       | GCSE Paper 2F June 2023     | 3                | <b>15</b> |
| 13. <b>Q17</b>                                      | GCSE Paper 2F June 2024     | 3                | <b>16</b> |
| 14. <b>Q15</b>                                      | GCSE Paper 2F November 2024 | 3                | <b>17</b> |
| 15. <b>Q14</b>                                      | GCSE Paper 1F June 2025     | 3                | <b>18</b> |
| 16. <b>Q19</b>                                      | GCSE Paper 2F June 2019     | 4                | <b>19</b> |
| 17. <b>Q12</b>                                      | GCSE Paper 3F November 2021 | 4                | <b>20</b> |
| 18. <b>Q6</b>                                       | GCSE Paper 3F June 2024     | 4                | <b>21</b> |
| 19. <b>Q12</b>                                      | GCSE Paper 3F June 2018     | 5                | <b>22</b> |
| <b>G2b CONGRUENCE &amp; SIMILARITY</b>              |                             | 9 Qs · 24 marks  | <b>23</b> |
| 20. <b>Q16</b>                                      | GCSE Paper 1F November 2018 | 1                | <b>24</b> |
| 21. <b>Q23</b>                                      | GCSE Paper 1F November 2020 | 1                | <b>25</b> |
| 22. <b>Q21</b>                                      | GCSE Paper 3F June 2017     | 2                | <b>26</b> |
| 23. <b>Q9</b>                                       | GCSE Paper 3F November 2018 | 2                | <b>27</b> |
| 24. <b>Q27</b>                                      | GCSE Paper 2F June 2024     | 2                | <b>28</b> |
| 25. <b>Q21</b>                                      | GCSE Paper 2F June 2017     | 4                | <b>29</b> |
| 26. <b>Q27</b>                                      | GCSE Paper 3F June 2018     | 4                | <b>30</b> |
| 27. <b>Q29</b>                                      | GCSE Paper 1F November 2019 | 4                | <b>31</b> |
| 28. <b>Q25</b>                                      | GCSE Paper 3F November 2022 | 4                | <b>32</b> |
| <b>G2c PLANS, ELEVATIONS &amp; 3D SHAPES</b>        |                             | 8 Qs · 24 marks  | <b>33</b> |
| 29. <b>Q5</b>                                       | GCSE Paper 3F November 2018 | 2                | <b>34</b> |
| 30. <b>Q25</b>                                      | GCSE Paper 1F June 2019     | 2                | <b>35</b> |
| 31. <b>Q22</b>                                      | GCSE Paper 3F November 2020 | 2                | <b>36</b> |
| 32. <b>Q19</b>                                      | GCSE Paper 2F November 2022 | 2                | <b>37</b> |



| QUESTION       | SOURCE                      | MARKS | PAGE      |
|----------------|-----------------------------|-------|-----------|
| 33. <b>Q19</b> | GCSE Paper 3F November 2023 | 3     | <b>38</b> |
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| 35. <b>Q19</b> | GCSE Paper 2F June 2017     | 4     | <b>41</b> |
| 36. <b>Q23</b> | GCSE Paper 1F June 2018     | 6     | <b>42</b> |



# QUESTIONS

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36 questions · 101 marks · 3 sub-topics

## SUB-TOPIC G2a

# CONSTRUCTIONS, LOCI & SCALE DRAWINGS

Sub-topic G2a · 19 questions · 53 marks · lowest tariff first



Macsen finds that each bag of gravel only covers an area of  $11 \text{ m}^2$

(b) How does this affect your answer to part (a)?

.....

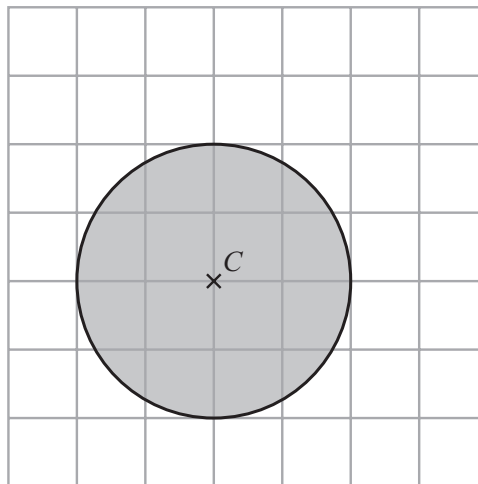
.....

.....

(1)

(Total for Question 22 is 5 marks)

23 The point  $C$  is shown on a centimetre grid.



A point  $P$  is at least 2 cm from the point  $C$ .

Nadia is asked to shade the region where point  $P$  could be.

Her answer is shown on the grid.

Explain the mistake Nadia has made.

.....

.....

.....

(Total for Question 23 is 1 mark)

6 Here are four fractions.

$$\frac{3}{4}$$

$$\frac{5}{7}$$

$$\frac{19}{25}$$

$$\frac{11}{15}$$

Write the fractions in order of size.  
Start with the smallest fraction.

(Total for Question 6 is 2 marks)

7 (a) Simplify  $3m - m - m + 3m$

(1)

(b) Simplify  $2 \times n \times p \times 4$

(1)

(Total for Question 7 is 2 marks)

8 A map has a scale of 1 cm to 14 km.

On the map, the distance between Manchester and London is 18.8 cm.

What is the real distance, in km, between Manchester and London?

.....km

(Total for Question 8 is 2 marks)



- 23 Use a ruler and compasses to construct the line from the point  $P$  perpendicular to the line  $CD$ .  
You must show **all** construction lines.

$\times P$

$C$  \_\_\_\_\_  $D$

(Total for Question 23 is 2 marks)



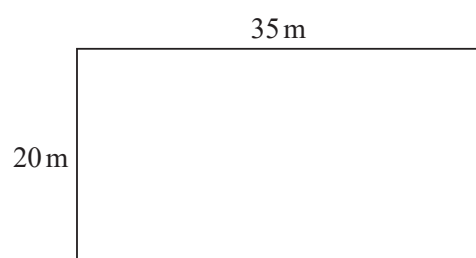
- 17 Draw accurately an isosceles triangle with sides of length 8 cm, 6 cm and 6 cm.  
One side of the triangle has been drawn for you.

8 cm

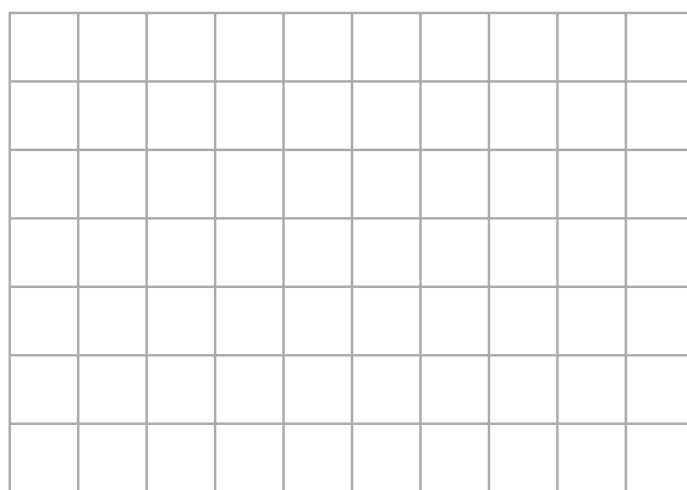
(Total for Question 17 is 2 marks)



- 5 The diagram shows a rectangle.



On the centimetre grid below, draw an accurate scale drawing of this rectangle.  
Use a scale of 1 cm to represent 5 m.



(Total for Question 5 is 2 marks)

7 Matt is drawing a scale diagram.

1 cm represents 5 m.

He draws a line 3 cm long.

(a) What real distance does the line represent?

..... m  
(1)

The real distance between two points is 20 m.

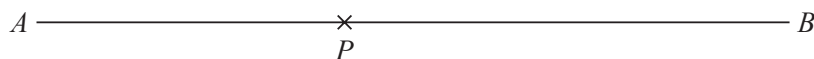
(b) What is the distance between the two points on the scale diagram?

..... cm  
(1)

(Total for Question 7 is 2 marks)



- 22 The point  $P$  lies on the line  $AB$ .  
Use ruler and compasses to construct an angle of  $90^\circ$  at  $P$ .  
You must show all your construction lines.



(Total for Question 22 is 2 marks)



18 (a) Write  $3.402 \times 10^5$  as an ordinary number.

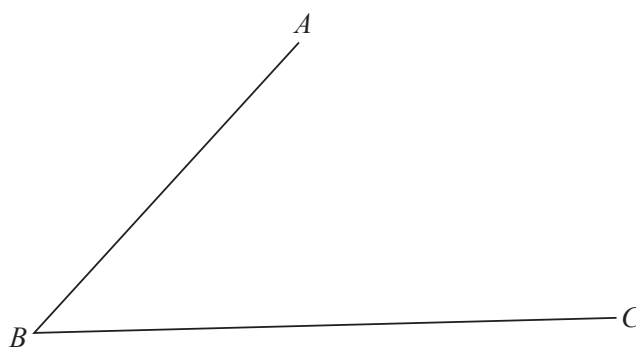
.....  
(1)

(b) Write 0.8026 in standard form.

.....  
(1)

(Total for Question 18 is 2 marks)

19 Use ruler and compasses to construct the bisector of angle  $ABC$ .  
You must show your construction lines.



(Total for Question 19 is 2 marks)

16  $A$ ,  $B$  and  $C$  are three points on a map.

$A \times$

$B$   
 $\times$

$\times$   
 $C$

1 cm represents 100 metres.

Point  $T$  is 250 metres from point  $A$ .

Point  $T$  is equidistant from point  $B$  and point  $C$ .

On the map, show one of the possible positions for point  $T$ .

(Total for Question 16 is 3 marks)



**15** The length of a plane is 19.2 metres.

Lukas buys a scale model of the plane.

The scale of the model is 1 : 24

Work out the length of the scale model of the plane.

Give your answer in centimetres.

..... centimetres

**(Total for Question 15 is 3 marks)**

**16** Maria invests £4500 in a savings account for 3 years.

The account pays simple interest at a rate of 1.8% per year.

Work out the total amount of interest Maria gets by the end of the 3 years.

£.....

**(Total for Question 16 is 2 marks)**



- 15 The table shows information about the number of social media accounts used by each of 300 students.

| Number of social media accounts | Frequency |
|---------------------------------|-----------|
| 0                               | 3         |
| 1                               | 57        |
| 2                               | 84        |
| 3                               | 75        |
| 4                               | 81        |

- (a) Work out the total number of social media accounts used by these students.

.....  
(2)

- (b) Find the median number of social media accounts used by these students.

.....  
(2)

(Total for Question 15 is 4 marks)

- 16 On a scale drawing, a building has length 12.4 cm and width 9.4 cm.  
The real length of the building is 62 metres.

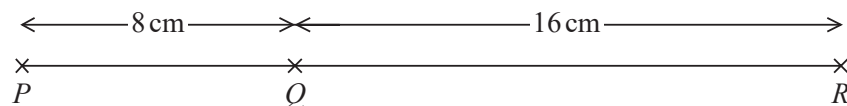
Work out, in metres, the real width of the building.

..... metres

(Total for Question 16 is 3 marks)



- 8 The diagram shows three motorway service stations  $P$ ,  $Q$  and  $R$  on a map.



The map has a scale of  $1 \text{ cm} = 4 \text{ km}$ .

Work out the real distance from  $P$  to  $R$ .

..... km

(Total for Question 8 is 3 marks)

- 9 Here are the first five terms of a sequence.

3      8      13      18      23

- (a) Write down the next term of this sequence.

.....  
(1)

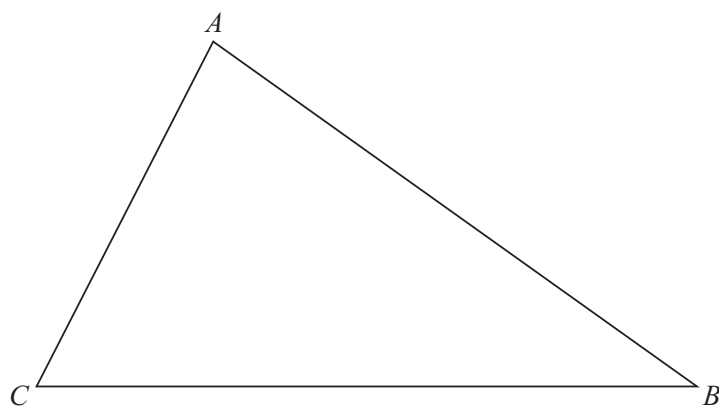
- (b) Write down the ratio of the second term to the fourth term.  
Give your ratio in its simplest form.

.....  
(2)

(Total for Question 9 is 3 marks)



17 Here is a triangle  $ABC$ .



The region **R** consists of all points inside the triangle that are

less than 4 cm from  $A$   
**and** closer to  $C$  than to  $B$ .

On the diagram show, by shading, the region **R**.

(Total for Question 17 is 3 marks)

- 15** A map has a scale of 1 : 25 000  
On the map, a road has a length of 14 cm.

Work out the real length of the road.  
Give your answer in kilometres.

..... kilometres

**(Total for Question 15 is 3 marks)**

- 16** Aisha has two boxes of sweets, box **A** and box **B**.

In box **A**, there are only 10 red sweets and 30 green sweets.  
In box **B**, there are only 7 red sweets and 18 green sweets.

Aisha is going to take at random a sweet from box **A** and a sweet from box **B**.

Which box gives Aisha the greater probability of taking a red sweet, box **A** or box **B**?  
You must show how you get your answer.

**(Total for Question 16 is 3 marks)**



**14** A road has a length of 1.6 kilometres.

The road is shown on a map with a scale of 1 : 20 000

Work out the length, in centimetres, of this road on the map.

..... centimetres

**(Total for Question 14 is 3 marks)**

**15** Work out  $1.35 \times 48$

.....  
**(Total for Question 15 is 3 marks)**



19 Here is a plan of a kitchen drawn to a scale of 1:30



Scale 1:30

Sam is going to put a small table in the kitchen.

The table has to be

more than 180 cm from *A*

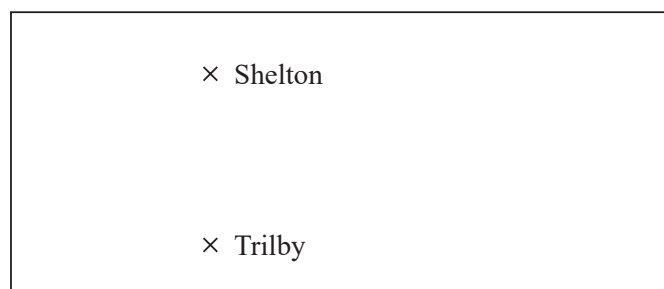
more than 150 cm from *BC*

Show, by shading on the diagram, the region where Sam can put the table.

(Total for Question 19 is 4 marks)



12 The diagram shows two places on a map.



Scale: 1 centimetre represents 20 kilometres

(a) What is the actual distance, in kilometres, from Shelton to Trilby?

..... kilometres  
(2)

On a scale drawing, the scale is given as 1 : 1200

(b) How many metres does 5 centimetres represent on this drawing?

..... metres  
(2)

(Total for Question 12 is 4 marks)



6 A map has a scale of 1 cm represents 4 km.

On the map, the distance from town A to town B is 8 cm.

(a) Work out the real distance, in km, from town A to town B.

..... km  
(2)

The real length of a road is 10 km.

(b) Work out the length of the road on the map.  
Give the units of your answer.

.....  
(2)

**(Total for Question 6 is 4 marks)**



12 The diagram shows a scale drawing of a tennis court.



The scale of the drawing is 1 : 200

Work out the perimeter of the real tennis court.  
Give your answer in metres.

..... metres

(Total for Question 12 is 5 marks)



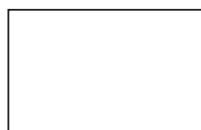
SUB-TOPIC G2b

# CONGRUENCE & SIMILARITY

Sub-topic G2b · 9 questions · 24 marks · lowest tariff first

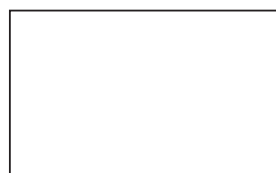


16 Here are two rectangles.



8 cm

6 cm



12 cm

10 cm

Jim says,

“The two rectangles are similar because  $8 + 4 = 12$  and  $6 + 4 = 10$ ”

Is Jim correct?

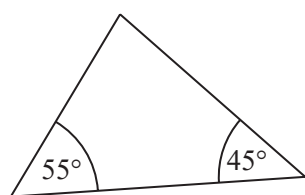
Explain your answer.

.....

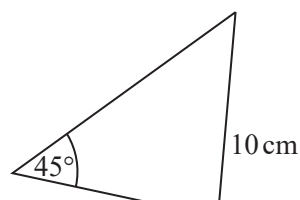
.....

(Total for Question 16 is 1 mark)

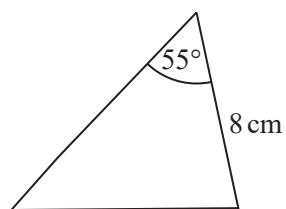
23 The diagram shows four triangles.



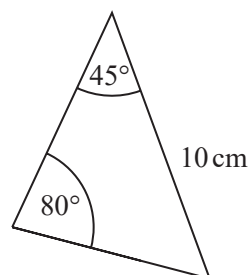
10 cm  
Triangle A



8 cm  
Triangle B



10 cm  
Triangle C



10 cm  
Triangle D

Two of these triangles are congruent.

Write down the letters of these two triangles.

..... and .....

(Total for Question 23 is 1 mark)

24 Sean pays £10 for 24 chocolate bars.

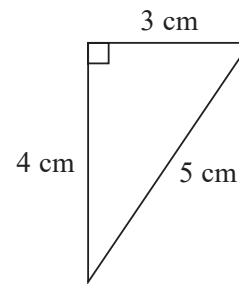
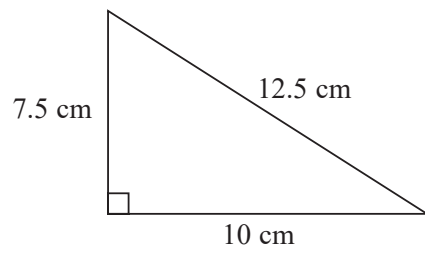
He sells all 24 chocolate bars for 50p each.

Work out Sean's percentage profit.

..... %

(Total for Question 24 is 3 marks)

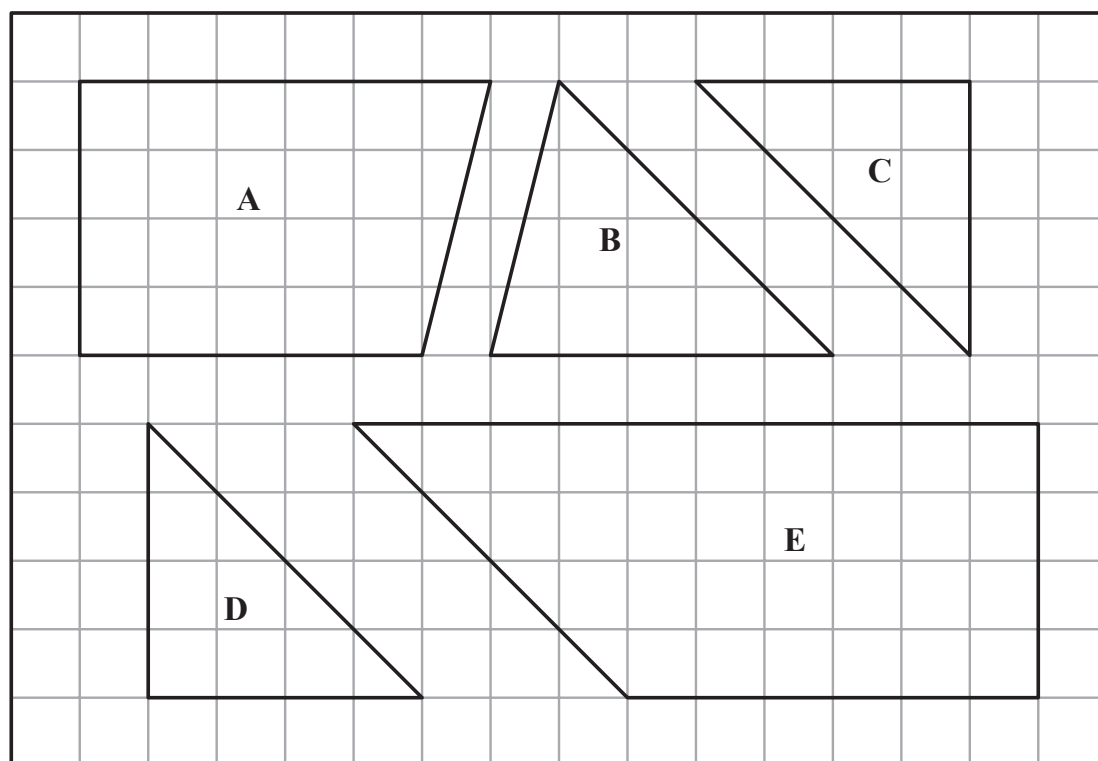
21



Show that these two triangles are mathematically similar.

(Total for Question 21 is 2 marks)

- 9 The diagram shows five shapes on a centimetre grid.



- (a) Write down the name of shape E.

.....  
(1)

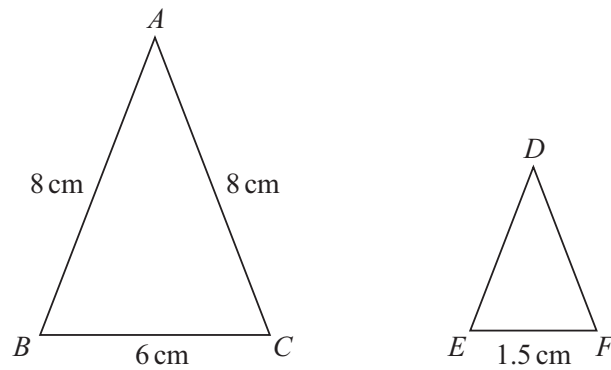
Two of the shapes are congruent.

- (b) Write down the letters of these two shapes.

..... and .....  
(1)

(Total for Question 9 is 2 marks)

27  $ABC$  and  $DEF$  are two similar isosceles triangles.



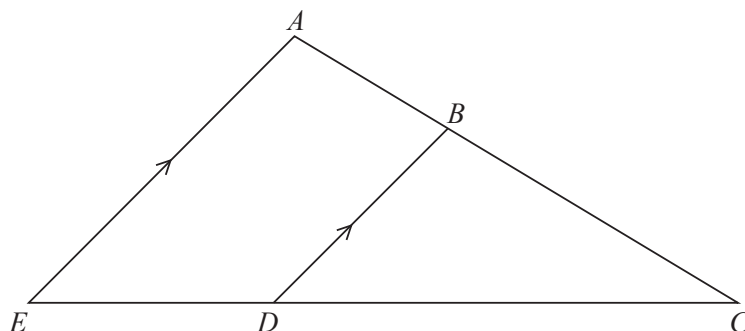
$$DE = DF$$

Work out the length of  $DE$ .

..... cm

(Total for Question 27 is 2 marks)

21



$ABC$  and  $EDC$  are straight lines.  
 $EA$  is parallel to  $DB$ .

$EC = 8.1$  cm.

$DC = 5.4$  cm.

$DB = 2.6$  cm.

(a) Work out the length of  $AE$ .

..... cm  
 (2)

$AC = 6.15$  cm.

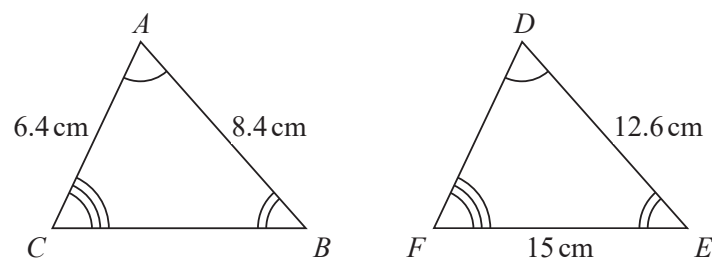
(b) Work out the length of  $AB$ .

..... cm  
 (2)

(Total for Question 21 is 4 marks)



27 Triangle  $ABC$  and triangle  $DEF$  are similar.



(a) Work out the length of  $DF$ .

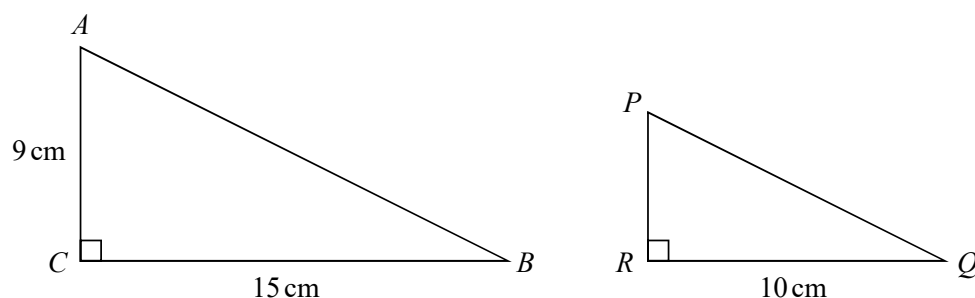
..... cm  
(2)

(b) Work out the length of  $CB$ .

..... cm  
(2)

(Total for Question 27 is 4 marks)

29  $ABC$  and  $PQR$  are similar right-angled triangles.

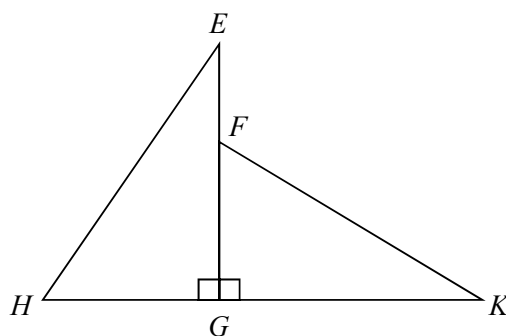


angle  $ABC$  = angle  $PQR$

(a) Work out the length of  $PR$ .

..... cm  
(2)

Triangle  $EGH$  is congruent to triangle  $KGF$ .



$HK = 10$  cm.

$HG = 4$  cm.

(b) Work out the length of  $EF$ .

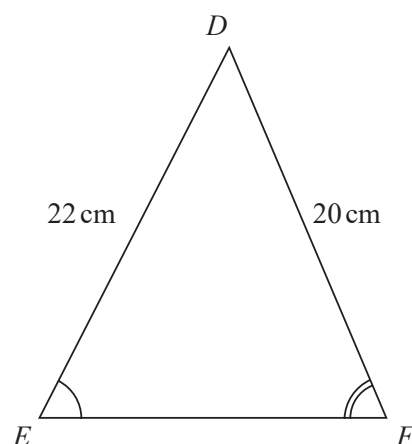
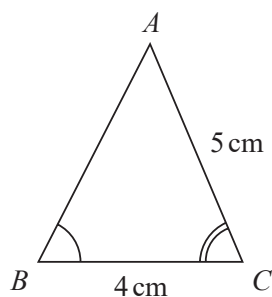
..... cm  
(2)

(Total for Question 29 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS



25 Triangle  $ABC$  and triangle  $DEF$  are similar.



(a) Work out the length of  $EF$ .

..... cm  
(2)

(b) Work out the length of  $AB$ .

..... cm  
(2)

(Total for Question 25 is 4 marks)

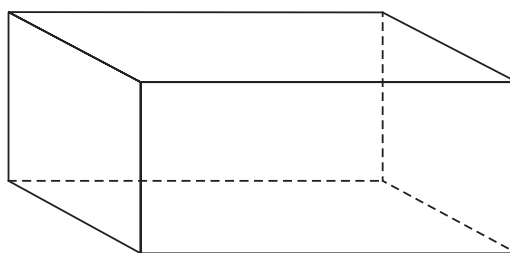
SUB-TOPIC G2c

# PLANS, ELEVATIONS & 3D SHAPES

Sub-topic G2c · 8 questions · 24 marks · lowest tariff first



5 Here is a 3-D shape.



(a) Write down the name of this 3-D shape.

.....  
(1)

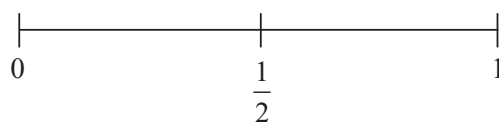
(b) Write down the number of edges of this 3-D shape.

.....  
(1)

(Total for Question 5 is 2 marks)

6 An ordinary fair dice is thrown once.

(a) On the probability scale below, mark with a cross (×) the probability that the dice lands on an odd number.



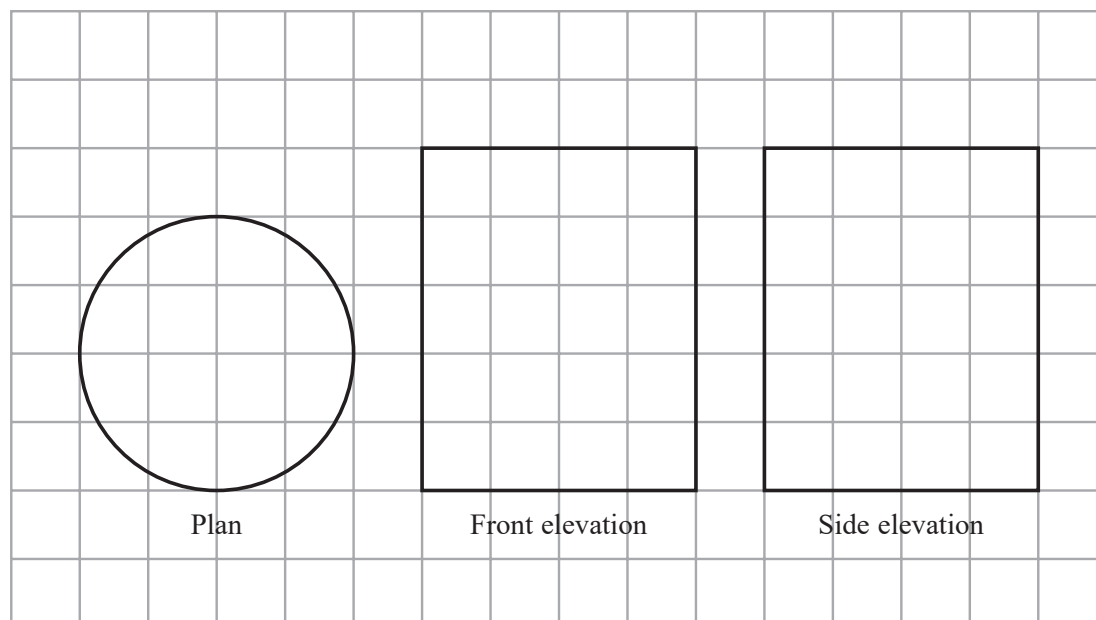
(1)

(b) Write down the probability that the dice lands on a number greater than 4

.....  
(1)

(Total for Question 6 is 2 marks)

- 25 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.

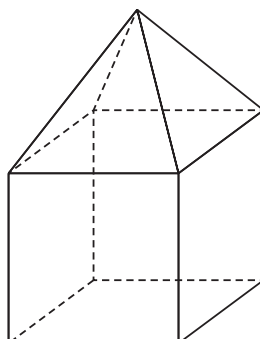


In the space below, draw a sketch of the solid shape.  
Give the dimensions of the solid on your sketch.

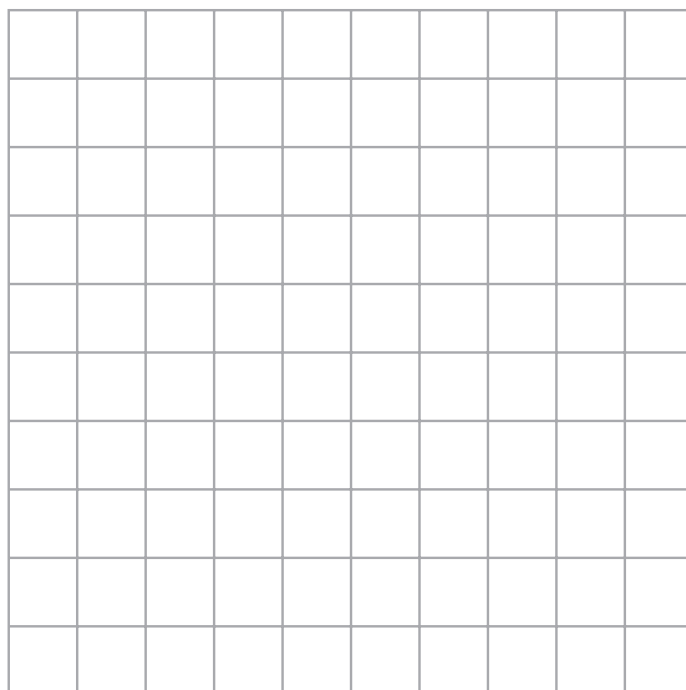
(Total for Question 25 is 2 marks)



- 22 Here is a solid made from a square-based pyramid and a cube.  
Each edge of the solid has length 6 cm.



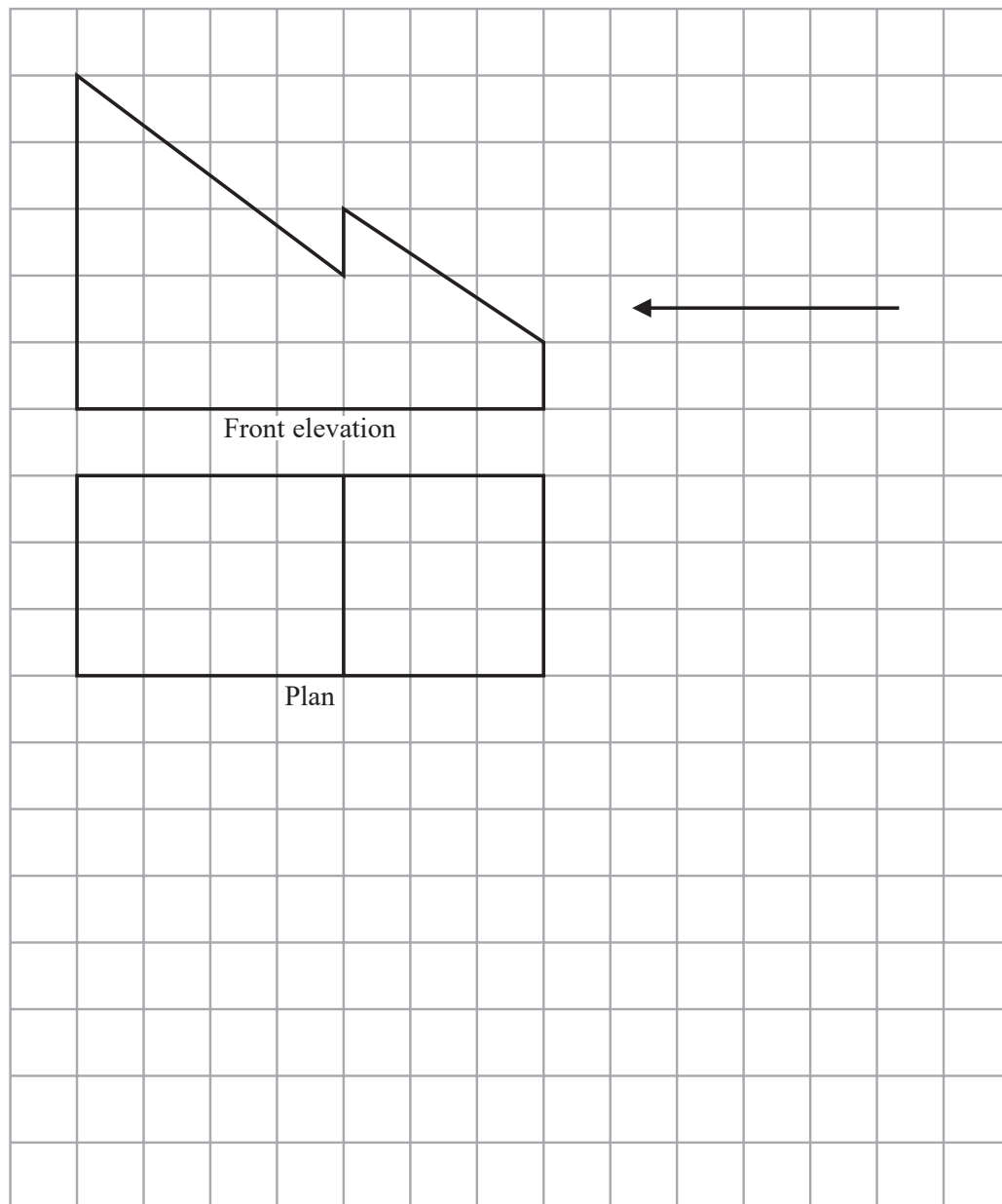
On the centimetre grid, draw the plan of this solid.



(Total for Question 22 is 2 marks)

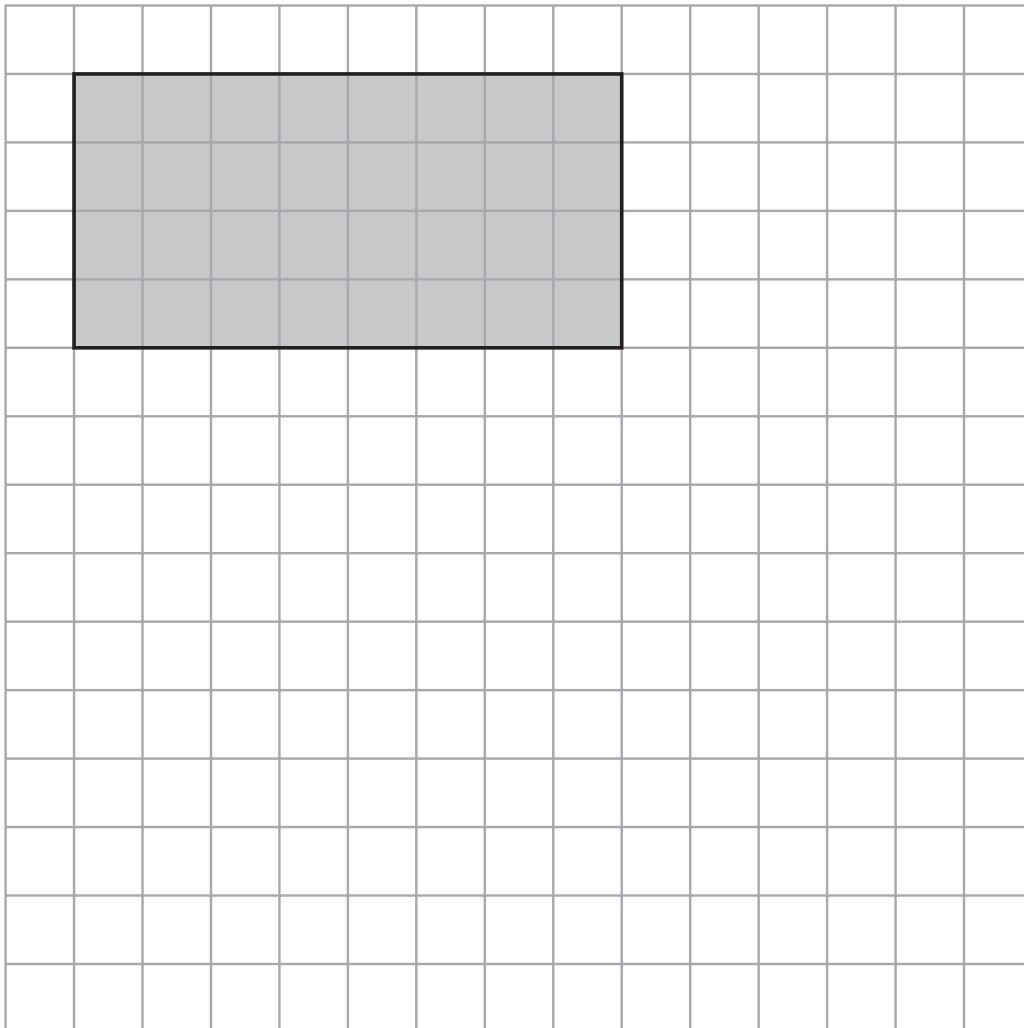
19 The front elevation and the plan of a solid are shown on the grid.

On the grid, draw the side elevation of the solid from the direction of the arrow.



(Total for Question 19 is 2 marks)

19 The front elevation of a cuboid is shown on the centimetre grid below.

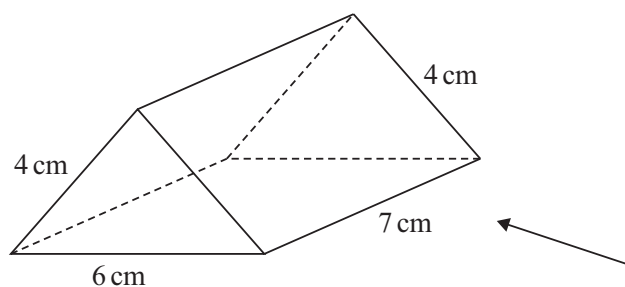


The volume of the cuboid is  $224\text{ cm}^3$

On the grid, draw the plan of the cuboid.

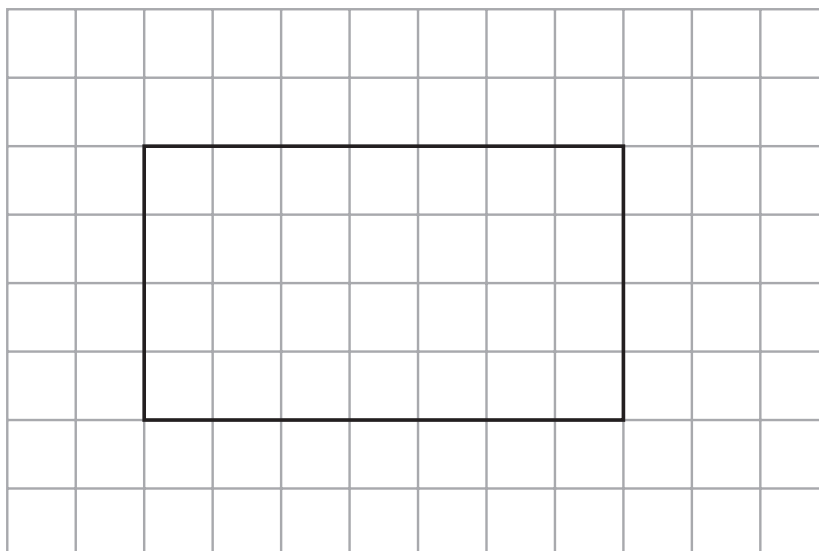
(Total for Question 19 is 3 marks)

24 The diagram shows a solid triangular prism.



Rana is trying to draw the side elevation of the solid prism from the direction of the arrow.

Here is her answer on a centimetre grid.



(a) Explain why Rana's side elevation is not correct.

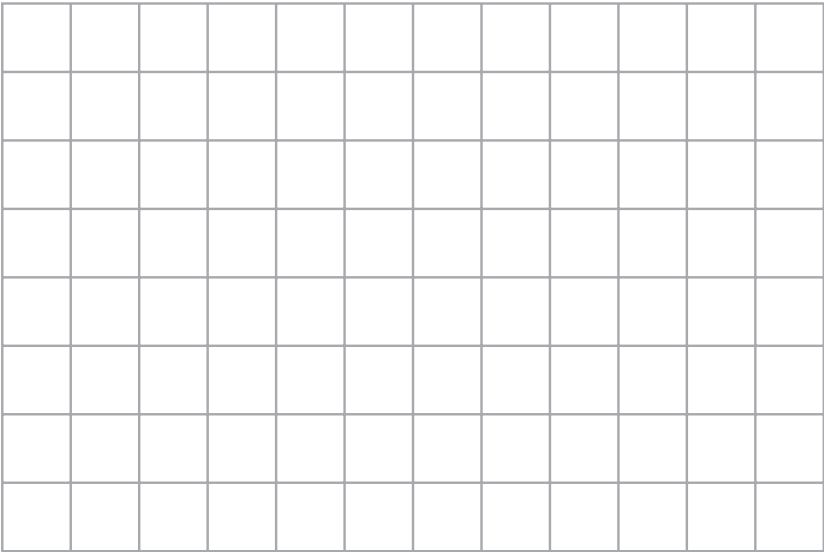
.....

.....

.....

(1)

(b) On the centimetre grid below, draw a plan of the solid prism.



(2)

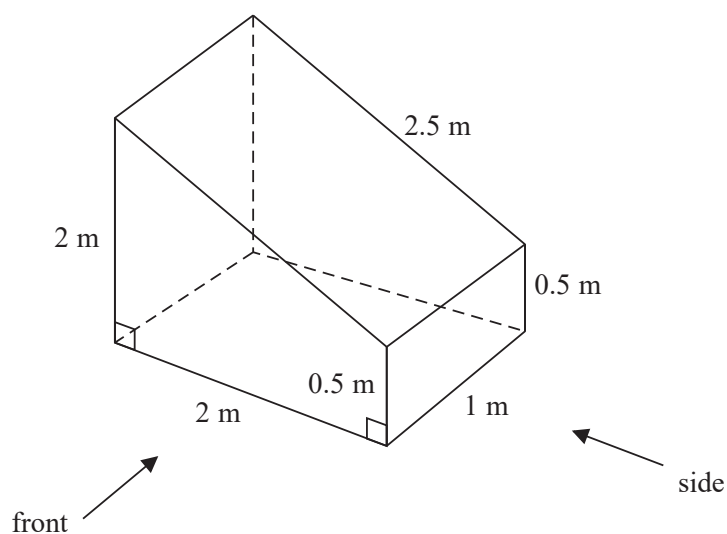
(Total for Question 24 is 3 marks)

25 A company has 25 000 workers.  
 The number of workers increases at a rate of 6% per year for 3 years.  
 Calculate the total number of workers at the end of the 3 years.

(Total for Question 25 is 4 marks)



19 The diagram shows a prism with a cross section in the shape of a trapezium.

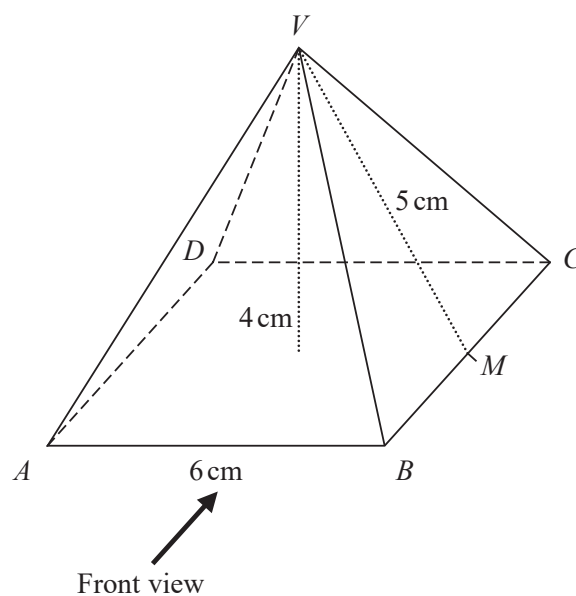


On the centimetre grid below, draw the front elevation and the side elevation of the prism.  
Use a scale of 2 cm to 1 m.



(Total for Question 19 is 4 marks)

23 Here is a solid square-based pyramid,  $VABCD$ .



The base of the pyramid is a square of side 6 cm.

The height of the pyramid is 4 cm.

$M$  is the midpoint of  $BC$  and  $VM = 5$  cm.

(a) Draw an accurate front elevation of the pyramid from the direction of the arrow.



(2)

(b) Work out the total surface area of the pyramid.

.....  
(4)

(Total for Question 23 is 6 marks)



# MARK SCHEMES

official mark schemes, in the same order as the questions



| Paper: 1MA1/2F |             |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |
|----------------|-------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Question       | Answer      | Mark | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Additional guidance |
| 23             | Explanation | C1   | <p>for valid explanation identifying mistake,</p> <p><b>Acceptable examples</b></p> <p>It's on the wrong side of circle<br/>           She shaded inside the circle (but should be outside)<br/>           Shaded where <math>P</math> can't be<br/>           She shaded/drew less than 2cm<br/>           She shaded at most 2 cm<br/> <math>P</math> should be outside (or on) the circle<br/> <math>P</math> should be anywhere outside the 2cm radius<br/>           She shaded around point <math>C</math> not (at least) 2cm from point <math>C</math><br/>           Nadia should have shaded away from the circle</p> <p><b>Not acceptable examples</b></p> <p>Shading is wrong or she shaded it incorrectly<br/>           Region is in the wrong place<br/>           Doesn't fit inside the circle<br/>           She shaded all the points between <math>C</math> and where all the points <math>P</math> could be<br/>           The question says at least 2cm and not only 2cm away<br/>           She shaded in too close<br/>           She shaded a circle not a square or should've drawn/shaded a square</p> |                     |

| Paper: 1MA1/2F |                                                          |              |                                                                                                                                                                  |                                                                                                                                                                            |
|----------------|----------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                                                   | Mark         | Mark scheme                                                                                                                                                      | Additional guidance                                                                                                                                                        |
| 1              | 40 or tens                                               | B1           | cao                                                                                                                                                              | Accept trailing zeros, eg 40.0<br>Accept forty                                                                                                                             |
| 2              | odd square                                               | B1           | stating an odd square number eg 1, 9, 25, 49, 81, etc.                                                                                                           |                                                                                                                                                                            |
| 3 (a)          | 4.56                                                     | B1           | cao                                                                                                                                                              | Accept trailing zeros, eg 4.560                                                                                                                                            |
| (b)            | 7300                                                     | B1           | cao                                                                                                                                                              | Accept trailing zeros, eg 7300.0                                                                                                                                           |
| 4              | 4                                                        | B1           | cao                                                                                                                                                              |                                                                                                                                                                            |
| 5              | $\frac{31}{100}$                                         | B1           | cao                                                                                                                                                              |                                                                                                                                                                            |
| 6              | $\frac{5}{7}, \frac{11}{15}, \frac{3}{4}, \frac{19}{25}$ | M1<br><br>A1 | conversion into decimals or percentages or other equivalent form, at least two conversions correct,<br><b>or</b> any three fractions in correct order<br><br>cao | 0.71(...), 0.73(...), 0.75, 0.76<br><br>Accept list in reverse order for this mark<br>Accept expressed in equivalent decimals or percentages or any other appropriate form |
| 7 (a)          | 4m                                                       | B1           | cao                                                                                                                                                              |                                                                                                                                                                            |
| (b)            | 8np                                                      | B1           | cao                                                                                                                                                              |                                                                                                                                                                            |
| 8              | 263.2                                                    | M1<br><br>A1 | for using the scale eg $14 \times 18.8$ <b>or</b> $14 \times 18$<br><br><b>or</b> for the digits 2632 <b>or</b> an answer of 263<br><br>cao                      |                                                                                                                                                                            |

| Paper: 1MA1/1F |                                |      |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                |
|----------------|--------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                         | Mark | Mark scheme                                                                                                                                             | Additional guidance                                                                                                                                                                                                                                                                            |
| 21             | 2<br>(supported)               | P1   | for a process to find the number of men, eg. $(60 \div 2) \div 3 (= 10)$                                                                                | $60 \div 3 = 20$ scores no marks.<br><br>Any ratio must come from correct processes to find the number of children and the number of men<br><br>Award 0 marks for 2 with no correct supportive working<br><br>Award full marks for 2 : 1 given as final answer from correct supportive working |
|                |                                | P1   | for a process to find the number of children, eg. $60 - "30" - "10" (= 20)$                                                                             |                                                                                                                                                                                                                                                                                                |
|                |                                | P1   | for a start of a process to find the value of $n$ , eg. $("20" : "10") \div 5$ or $20 : 10 = 10 : 5$ or $"20" \div "10"$                                |                                                                                                                                                                                                                                                                                                |
|                |                                | A1   | for 2 with supportive working                                                                                                                           |                                                                                                                                                                                                                                                                                                |
| 22             | $2\frac{1}{3}$                 | M1   | for either $\frac{7}{4}$ oe or $\frac{4}{3}$ oe                                                                                                         |                                                                                                                                                                                                                                                                                                |
|                |                                | M1   | for method to find the product, eg $\frac{7 \times 4}{4 \times 3}$ or $\frac{21 \times 16}{12 \times 12}$ oe or for $\frac{28}{12}$ or $\frac{7}{3}$ oe |                                                                                                                                                                                                                                                                                                |
|                |                                | A1   | for $2\frac{1}{3}$ or an equivalent mixed number                                                                                                        |                                                                                                                                                                                                                                                                                                |
| 23             | perpendicular line constructed | C2   | for a fully correct construction with all relevant arcs drawn                                                                                           | Perpendicular line segment between $P$ and $CD$ must be within guidelines<br>Accept dotted lines.                                                                                                                                                                                              |
|                |                                | (C1  | for a perpendicular line drawn from $P$ to the line $CD$ or all relevant arcs drawn)                                                                    |                                                                                                                                                                                                                                                                                                |

| Paper: 1MA1/3F |                  |      |                                                                                                                                                            |                                                                                         |
|----------------|------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Question       | Answer           | Mark | Mark scheme                                                                                                                                                | Additional guidance                                                                     |
| 16 (a)         | $\frac{5}{11}$   | M1   | for $\frac{5}{n}$ where $n > 5$ or $\frac{m}{11}$ where $m < 11$                                                                                           | where "11" comes from 5+2+4                                                             |
|                |                  | A1   | for $\frac{5}{11}$ oe                                                                                                                                      | Accept any equivalent fraction, decimal form 0.45(45...) or percentage form 45(.45...)% |
|                |                  | B1   | for 0.7 oe                                                                                                                                                 | Accept any equivalent fraction eg $\frac{7}{10}$ or percentage form eg 70%              |
| 17             | accurate drawing | M1   | for drawing a side of length 6cm                                                                                                                           |                                                                                         |
|                |                  | A1   | for correct triangle                                                                                                                                       |                                                                                         |
| 18             | 258 to 275       | M1   | for taking a correct reading from the graph that shows conversion of an amount in \$ to £                                                                  |                                                                                         |
|                |                  | M1   | for a complete method eg attempts to read from the graph at using numbers that sum to 345 <b>and</b> finds the sum of their readings eg $6 \times 50 + 45$ | Must be a complete method to get to 345                                                 |
|                |                  | A1   | for answer in the range 258 to 275                                                                                                                         | Condone incorrect money notation if the meaning is clear                                |
| 19 (a)         | 140              | M1   | for complete method eg $56 \div 40 \times 100$                                                                                                             | May be seen in different ways, eg $2.5 \times 56$                                       |
|                |                  | A1   | cao                                                                                                                                                        |                                                                                         |
|                | 32               | M1   | for method to find percentage, eg $\frac{18}{56} \times 100 (=32.14...)$                                                                                   |                                                                                         |
|                |                  | A1   | for an answer in the range 32 to 32.2                                                                                                                      |                                                                                         |



| Paper: 1MA1/2F |                            |                |                                                                                                                                                |                                                                                                                                                                        |
|----------------|----------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                     | Mark           | Mark scheme                                                                                                                                    | Additional guidance                                                                                                                                                    |
| 1              | $\frac{31}{100}$ oe        | B1             | for $\frac{31}{100}$ or any equivalent fraction                                                                                                | Ignore any attempt at simplification of $\frac{31}{100}$                                                                                                               |
| 2              | 300                        | B1             | cao                                                                                                                                            |                                                                                                                                                                        |
| 3              | 0.12, 0.21, 1.02, 1.20     | B1             | accept 1.20, 1.02, 0.21, 0.12                                                                                                                  |                                                                                                                                                                        |
| 4 (a)          | 4m                         | B1             | cao                                                                                                                                            |                                                                                                                                                                        |
| (b)            | 3p                         | B1             | cao                                                                                                                                            |                                                                                                                                                                        |
| 5              | 7cm by 4cm rectangle drawn | M1<br>A1       | for a rectangle drawn with one correct dimension<br>or $35 \div 5 (=7)$ and $20 \div 5 (=4)$<br>for a fully correct 7cm by 4cm rectangle drawn | Correct calculations/measurements seen the method mark can be awarded even if the drawing is incorrect or not present<br>Accept any orientation of a correct rectangle |
| 6 (a)          | 25                         | B1             | cao                                                                                                                                            |                                                                                                                                                                        |
| (b)            | 24                         | B1             | cao                                                                                                                                            |                                                                                                                                                                        |
| 7              | 780                        | P1<br>P1<br>A1 | for $2500 - 940 (=1560)$<br>or $2500 \div 2 (=1250)$ and $940 \div 2 (=470)$<br>for “1560” $\div 2$ or “1250” – “470”<br>cao                   |                                                                                                                                                                        |

| Paper: 1MA1/1F |             |                        |                                                                                                                                                                                                                     |                                                                                                                                                                          |
|----------------|-------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer      | Mark                   | Mark scheme                                                                                                                                                                                                         | Additional guidance                                                                                                                                                      |
| 1              | 6           | B1                     | cao                                                                                                                                                                                                                 |                                                                                                                                                                          |
| 2              | 31          | B1                     | cao                                                                                                                                                                                                                 |                                                                                                                                                                          |
| 3              | 12 <i>a</i> | B1                     |                                                                                                                                                                                                                     |                                                                                                                                                                          |
| 4              | 40          | B1                     | accept answer in the range 38 to 42                                                                                                                                                                                 |                                                                                                                                                                          |
| 5              | 60          | B1                     | cao                                                                                                                                                                                                                 |                                                                                                                                                                          |
| 6              | 2300        | P1<br><br>P1<br><br>A1 | for converting to millilitres or litres<br>eg $3 \times 1000 (= 3000)$ <b>or</b> $700 \div 1000 (= 0.7)$<br><br>for finding the difference eg $[3000] - 700$ <b>or</b> $3 - [0.7] (= 2.3)$<br><br>accept 2.3 litres | Process marks may be awarded in either order<br><br>[3000] comes from $3 \times 1000$ or can be 30 or 300 or 30000<br>[0.7] comes from $700 \div 1000$ or can be 7 or 70 |
| 7 (a)          | 15          | B1                     | cao                                                                                                                                                                                                                 |                                                                                                                                                                          |
| (b)            | 4           | B1                     | cao                                                                                                                                                                                                                 |                                                                                                                                                                          |



| Paper: 1MA1/1F |                   |                        |                                                                                                                                                                                                                                                                                            |                                                                                    |
|----------------|-------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Question       | Answer            | Mark                   | Mark scheme                                                                                                                                                                                                                                                                                | Additional guidance                                                                |
| 21 (a)         | 3.5               | P1<br><br>P1<br><br>A1 | for a process to find the total length of the 5 sticks, eg $4.2 \times 5 (= 21)$<br><b>or</b> for forming an equation, eg $\frac{7+4x}{5} = 4.2$<br><br>for complete process to find the mean eg $(“21” - 7) \div 4$<br><br>oe                                                             |                                                                                    |
| (b)            | Explanation       | C1                     | for explanation<br><b>Acceptable examples</b><br>it reduced the mean<br>my answer will be less<br>the answer will be 1<br>it will be 2.5 less<br><br><b>Not acceptable examples</b><br>the mean will be more<br>my answer will change<br>it would decrease the lengths of the other sticks | If figures are given as part of the answer they must be correct, but can allow ft. |
| 22             | Angle constructed | C2<br><br>(C1)         | for fully correct construction with all arcs drawn<br><br>for line drawn within guidelines with no (or incorrect) construction arcs or correct arcs drawn and no line seen                                                                                                                 | Full marks cannot be awarded if no construction lines are seen                     |



| Paper: 1MA1/3F |                              |      |                                                                                                      |                                                              |
|----------------|------------------------------|------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Question       | Answer                       | Mark | Mark scheme                                                                                          | Additional guidance                                          |
| 18 (a)         | 340 200                      | B1   | cao                                                                                                  |                                                              |
|                | (b) $8.026 \times 10^{-1}$   | B1   | cao                                                                                                  |                                                              |
| 19             | Drawn                        | B2   | for a correct construction with all relevant arcs drawn                                              |                                                              |
|                |                              | (B1  | for all relevant arcs drawn<br>or for a bisector within guidelines but with no or insufficient arcs) |                                                              |
| 20 (a)         | (0.3) 0.7 0.3 0.7<br>0.3 0.7 | B2   | all probabilities correctly placed                                                                   | Accept equivalent fractions or percentages for probabilities |
|                |                              | (B1  | for 0.7 correctly placed for Game 1)                                                                 |                                                              |
|                |                              | M1   | for a correct method, ft their tree diagram<br>eg $0.7 \times 0.7$ only                              | ft their diagram provided probabilities are less than 1      |
| (b)            | 0.49                         | A1   | oe, ft their tree diagram                                                                            | An answer of $\frac{0.49}{1}$ scores M1A0 unless 0.49 seen   |



| Paper 1MA1: 2F |         |                      |      |                                                                                                                                                                                   |
|----------------|---------|----------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Working | Answer               | Mark | Notes                                                                                                                                                                             |
| 14 (a)         |         | $5(1 - 2m)$          | B1   | cao                                                                                                                                                                               |
|                |         | $2ab(a + 3b)$        | M1   | for $2a(ab + 3b^2)$ or $2b(a^2 + 3ab)$ or $ab(2a + 6b)$ or $2ab$ (2 term expression with terms in $a$ or $b$ or $ab$ , can include constants), eg $2ab(1a + 3ab)$ , $2ab(1 + 3b)$ |
|                |         |                      | A1   | for $2ab(a + 3b)$                                                                                                                                                                 |
| 15 (a)         |         | 0.47                 | B1   |                                                                                                                                                                                   |
|                |         | $2.28 \times 10^9$   | M1   | for correct value but not in standard form, eg $22.8 \times 10^{3+5}$ , $228 \times 10^7$ , $2\,280\,000\,000$ or for $2.28 \times 10^n$ , $n \neq 9$                             |
|                |         |                      | A1   | cao                                                                                                                                                                               |
| 16             |         | $T$ shown on the map | C1   | for showing a perpendicular bisector or point $T$ equidistant from points $B$ and $C$ .                                                                                           |
|                |         |                      | C1   | for a circle or arc of circle of radius 2.5 cm or point $T$ 2.5 cm from point $A$                                                                                                 |
|                |         |                      | C1   | for $T$ shown in correct position                                                                                                                                                 |







| Paper: 1MA1/2F |                               |      |                                                                                                         |                                                        |
|----------------|-------------------------------|------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Question       | Answer                        | Mark | Mark scheme                                                                                             | Additional guidance                                    |
| 1              | 6200                          | B1   | for 6200 (accept in words)                                                                              |                                                        |
| 2              | $\frac{7}{10}$                | B1   | or any equivalent fraction                                                                              |                                                        |
| 3              | 900                           | B1   | cao                                                                                                     |                                                        |
| 4              | 12t                           | B1   | for 12t                                                                                                 |                                                        |
| 5              | 100                           | B1   | cao                                                                                                     |                                                        |
| 6 (a)          | Cross marked at 0             | B1   |                                                                                                         | Allow if intention is clear                            |
| (b)            | Cross marked at $\frac{1}{2}$ | B1   |                                                                                                         | Allow if intention is clear                            |
| 7 (a)          | 9.3                           | B1   | accept answer in the range 9.1 to 9.5                                                                   |                                                        |
| (b)            | 106                           | B1   | accept answer in the range 104 to 108                                                                   |                                                        |
| (c)            | isosceles                     | B1   | for isosceles                                                                                           | Condone incorrect spelling provided intention is clear |
| 8              | 96                            | P1   | for process to find total distance before or after using scale, eg $8 + 16 (= 24)$<br>or “32” + “64” oe | Condone incorrect use of scale if addition seen.       |
|                |                               | P1   | for process to use scale, eg $8 \times 4 (= 32)$ or $16 \times 4 (= 64)$ or $[PR] \times 4$             | where [PR] is 12 or 13 or is clearly stated            |
|                |                               | A1   | cao                                                                                                     |                                                        |



| Paper: 1MA1/2F |                       |      |                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                  |
|----------------|-----------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                | Mark | Mark scheme                                                                                                                                                                                                                                                                                                                                                   | Additional guidance                                                                                                                                              |
| 16 (a)         | 170                   | B1   | for answer in the range 167 to 173                                                                                                                                                                                                                                                                                                                            | May be seen as a build-up method using multiple readings that can be read from the graph but must total 1000 grams<br><br>(ounces, grams) is a point on the line |
|                |                       | M1   | for correctly using readings from the graph as a factor of 1000 from the grams scale,<br>eg $200 \times 5$ or $100 \times 10$ or $20 \times 50$ or $250 \times 4$<br><br>or for method to use multiples of grams and corresponding ounces readings,<br>eg $1000 \div \text{"answer to (a)" } \times 6$<br>or $1000 \div \text{grams} \times \text{ounces oe}$ |                                                                                                                                                                  |
|                |                       | A1   | for an answer in the range 34 to 36                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                  |
| 17             | Region <b>R</b> shown | C1   | for arc drawn, radius 4 cm, centre A                                                                                                                                                                                                                                                                                                                          | Allow free hand drawing                                                                                                                                          |
|                |                       | C1   | for perpendicular bisector of CB drawn                                                                                                                                                                                                                                                                                                                        | Allow free hand drawing                                                                                                                                          |
|                |                       | C1   | for fully correct region <b>R</b> shown (inside the arc from A and left of the bisector)                                                                                                                                                                                                                                                                      | Ignore absence of "R" if region is unambiguously shown eg by shading                                                                                             |
| 18             | 12                    | P1   | for a beginning process,<br>eg $1800 - (1800 \times 0.56)$ oe or $1800 \times (1 - 0.56)$ (= 792)<br>or $1800 \div 100 \times 56 \div 66$ (= 15.272...)<br>or $1800 \div 66$ (=27.272...)<br>or $[44\%] \div 66$                                                                                                                                              | [44%] is the value they clearly believe to be 44% of 1800                                                                                                        |
|                |                       | P1   | for a complete process, eg "792" $\div 66$<br>or "27.272..." $\times (1 - 0.56)$ oe<br>or "27.272..." – "15.272..."                                                                                                                                                                                                                                           |                                                                                                                                                                  |
|                |                       | A1   | cao                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                  |



| Paper: 1MA1/2F |                           |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                   |
|----------------|---------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                    | Mark                   | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Additional guidance                                                                                                                                                                                                                                                                                                               |
| 15             | 3.5                       | M1<br><br>M1<br><br>A1 | for a correct first step,<br>eg $14 \times 25\,000 (= 350\,000)$<br><b>or</b> digits $14 \times$ digits $25$<br><b>or</b> $25\,000 \div 100\,000 (= 0.25)$ oe<br><b>or</b> $14 \div 100\,000 (= 0.00014)$<br><b>or</b> [distance] $\div 100\,000$<br><br>for a complete method,<br>eg “ $350\,000$ ” $\div 100\,000$ oe<br><b>or</b> “ $0.25$ ” $\times 14$<br><b>or</b> “ $0.00014$ ” $\times 25\,000$<br><br>for 3.5 oe                                                                                                                                                                                                                                                                                                                                                                      | [distance] is any calculated value using digits 14 and digits 25                                                                                                                                                                                                                                                                  |
| 16             | Box B and correct figures | P1<br><br>P1<br><br>C1 | for process to find one probability or proportion,<br>eg $\frac{10}{10+30} \left( = \frac{10}{40} \right)$ <b>or</b> $\frac{7}{7+18} \left( = \frac{7}{25} \right)$<br><br>(dep P1) for process to find figures to compare using a common format,<br>eg $10 \div [40] (= 0.25)$ <b>and</b> $7 \div [25] (= 0.28)$<br><b>or</b> $10 \div [40] \times 100 (= 25)$ <b>and</b> $7 \div [25] \times 100 (= 28)$<br><b>or</b> $\frac{10}{[40]} = \frac{25}{100}$ oe <b>and</b> $\frac{7}{[25]} = \frac{28}{100}$ oe<br><br><b>or</b> $\frac{10 \div 10}{[40] \div 10} \left( = \frac{1}{4} \right)$ <b>and</b> $\frac{7 \div 7}{[25] \div 7} \left( = \frac{1}{3.57\dots} \right)$<br><br>(dep on P2) for Box B <b>and</b> correct comparative figures,<br>eg 0.25 and 0.28<br><b>or</b> 25% and 28% | Accept 10 : 30 or 7 : 18<br><br>Accept eg 30 : 90 <b>and</b> 35 : 90<br>[40] is any value $>10$<br>[25] is any value $>7$ but one probability or proportion must be correct from previous P1<br><br>Comparative figures may be probabilities, ratios or comparative proportions<br>eg box A: 70R and 210G and box B: 70R and 180G |

| Paper: 1MA1/1F |        |      |                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                        |
|----------------|--------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer | Mark | Mark scheme                                                                                                                                                                                                                                                                                                     | Additional guidance                                                                                                                                                    |
| 14             | 8      | M1   | for unit conversion<br>for $1.6 \times 100\,000 (= 160\,000 \text{ (cm)})$ or $1.6 \times 1000 (= 1600 \text{ (m)})$<br>or<br>for $20\,000 \div 100\,000 (= 0.2)$ or $20\,000 \div 100 (= 200)$ or<br>$20\,000 \div 1000 (= 20)$<br>or<br>$"0.00008" \times 1000 (= 0.08)$ or $"0.00008" \times 100\,000 (= 8)$ | ie conversions to cm or m<br>Do not award if conversion linked to incorrect unit eg $1.6 \times 1000 = 1600 \text{ cm}$<br>Answer of 160 000 centimetres scores M1M0A0 |
|                |        | M1   | for use of scale<br>[distance] $\div 20\,000$<br>or<br>$1.6 \div "0.2" \text{ or } 16 \div ("0.2" \times 10)$<br>or<br>$1.6 \div "20" (= 0.08)$ or $"1600" \div "200" (= 8)$<br>or<br>$1.6 \div 20\,000 (= 0.00008)$                                                                                            | Where [distance] is an attempt at converting km to m or cm, ie figs 16                                                                                                 |
|                |        | A1   | cao                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                        |



| Paper: 1MA1/2F |               |      |                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                               |
|----------------|---------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer        | Mark | Mark scheme                                                                                                                                                                                                                                                                                                  | Additional guidance                                                                                                                                                           |
| 18             | 952           | P1   | for starting to work with parts,<br>eg. $6 \times 60 \div 10 (= 36)$ or $10 \div 6 (= 1.66\ldots)$ or $6 \div 10 (= 0.6)$<br>or $13 \times 60 \div 15 (= 52)$ or $15 \div 13 (= 1.15\ldots)$ or $13 \div 15 (= 0.866\ldots)$<br><b>OR</b> for $60 \div 10 \times 12 (= 72)$ or $10 \times 60 \div 15 (= 40)$ |                                                                                                                                                                               |
|                |               | P1   | for a full process to find the number of parts made by machine A<br>eg $"36" \times 12 (= 432)$ or $12 \times 60 \div "1.66\ldots" (= 432)$<br>or $12 \times 60 \times "0.6" (= 432)$<br><b>OR</b> $"72" \times 6 (= 432)$                                                                                   |                                                                                                                                                                               |
|                |               | P1   | for a full process to find the number of parts made by machine B<br>eg $"52" \times 10 (= 520)$ or $10 \times 60 \div "1.15\ldots" (= 520)$<br>or $10 \times 60 \times "0.866\ldots" (= 520)$<br><b>OR</b> $"40" \times 13 (= 520)$                                                                          |                                                                                                                                                                               |
|                |               | A1   | for 952 or 432 <b>and</b> 520                                                                                                                                                                                                                                                                                |                                                                                                                                                                               |
| 19             | Shaded region | M1   | for $180 \div 30 (= 6)$ or $150 \div 30 (= 5)$                                                                                                                                                                                                                                                               | This may be just used in a correct locus drawn on the diagram<br><br>Ignore any additional arcs or lines drawn<br><br>Accept shading out leaving the required region unshaded |
|                |               | M1   | draws an arc of radius "6 cm" centre <i>A</i> or draws a line segment parallel to <i>BC</i> and "5 cm" away                                                                                                                                                                                                  |                                                                                                                                                                               |
|                |               | M1   | for an arc of radius "6 cm" centre <i>A</i> <b>and</b> a line parallel to <i>BC</i> and "5 cm" away with no additional arcs or lines drawn                                                                                                                                                                   |                                                                                                                                                                               |
|                |               | A1   | Answer within tolerance with region shaded                                                                                                                                                                                                                                                                   |                                                                                                                                                                               |

| Paper: 1MA1/3F |                                                                                                                                                 |                    |                                                                                                                                                                                                                      |                                                                                                                                 |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                                                                                                                                          | Mark               | Mark scheme                                                                                                                                                                                                          | Additional guidance                                                                                                             |
| 9              | $\begin{array}{ccccc} 4 & \mathbf{5} & 23 & \mathbf{32} \\ \mathbf{8} & 9 & 7 & 24 \\ \mathbf{12} & \mathbf{14} & 30 & \mathbf{56} \end{array}$ | B3<br>(B2)<br>(B1) | for a fully correct table<br>for at least 7 figures correctly placed)<br>for the given values correctly placed in the table or one correct row or column)                                                            | Given values in bold<br>Given values: 5, 32, 8, 12, 14, 56                                                                      |
| 10             | 61                                                                                                                                              | P1<br>A1<br>A1     | for $300 \div 4.85 (= 61.8\dots)$<br>for 61.8... <b>or</b> 62<br>61                                                                                                                                                  | This mark may be awarded for build-up methods that get to figures that are before or after 300<br>Embedded answers get –1 mark. |
| 11 (a)         | 3 hrs 16 mins                                                                                                                                   | P1<br>A1           | $196 - 60 - 60 - 60 (=16)$ <b>or</b> $196 \div 60 (= 3.26\dots \text{ or } 3.27\dots)$<br><b>or</b> states 3 hours in their answer (with an incorrect number of minutes or minutes left blank)<br>3 hours 16 minutes |                                                                                                                                 |
| (b)            | $\frac{x}{2}$                                                                                                                                   | B1                 | $\frac{x}{2}$ <b>or</b>                                                                                                                                                                                              |                                                                                                                                 |
| 12 (a)         | 50                                                                                                                                              | M1<br>A1           | $[2.5] \times 20 (=50)$<br>for an answer in the range 46 to 54                                                                                                                                                       | [2.5] a number in the range 2.3 to 2.7 or identified as the distance from Shelton to Trilby                                     |
| (b)            | 60                                                                                                                                              | M1<br>A1           | $5 \times 1200 (=6000)$<br><b>or</b> $1200 \div 100 (=12)$<br><b>or</b> conversion $5 \div 100 (=0.05)$<br>cao                                                                                                       |                                                                                                                                 |

| Paper: 1MA1/3F |                                       |      |                                                                                     |                                                                                                                    |
|----------------|---------------------------------------|------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                                | Mark | Mark scheme                                                                         | Additional guidance                                                                                                |
| 1              | $\frac{23}{100}$                      | B1   | oe                                                                                  |                                                                                                                    |
| 2              | 8                                     | B1   | cao                                                                                 |                                                                                                                    |
| 3              | tens or 30                            | B1   | for (3) tens <b>or</b> 30 <b>or</b> thirty                                          | Condone incorrect spelling provided the intention is clear                                                         |
| 4              | 3a                                    | B1   | for 3a                                                                              | Allow a3                                                                                                           |
| 5              | $\frac{1}{4} \frac{1}{2} \frac{2}{3}$ | B1   | for correct order                                                                   | Accept any form<br>Accept 0.6 or 0.66 or 0.67 or 0.7<br>or 60% or 66% or 67% or 70%<br>or better for $\frac{2}{3}$ |
| 6              | (a)                                   | P1   | for process to find length, eg $8 \times 4$                                         | Must include correct units                                                                                         |
|                |                                       | A1   | cao                                                                                 |                                                                                                                    |
|                | (b)                                   | P1   | for process to find length, eg $10 \div 4 (= 2.5)$ oe eg $1 + 1 + 1 \div 2 (= 2.5)$ |                                                                                                                    |
|                |                                       | A1   | for 2.5 cm oe eg 25 mm, 0.025 m                                                     |                                                                                                                    |
| 7              | (a)                                   | B1   | cao                                                                                 |                                                                                                                    |
|                | (b)                                   | B1   | cao                                                                                 |                                                                                                                    |

| Paper: 1MA1/3F |                     |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|---------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer              | Mark                       | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Additional guidance                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 10             | Shows earnings      | M1<br>M1<br>C1             | for a method to start to work out earnings<br>eg $11.2 \times 8 (= 89.6)$ <b>or</b> $20 - 8 (= 12)$ <b>or</b> $8.4 \times 12 (= 100.8)$<br><br>for a complete method eg $11.2 \times 8 + 8.4 \times (20 - 8)$<br><b>or</b> " $89.6$ " + " $100.8$ " <b>or</b> $200 - "89.6" - "100.8" (= 9.6)$<br>Shows earnings eg $190.4(0)$ <b>or</b> $9.6(0)$ with fully correct arithmetic                                                                                                                                                                                                                                      | Accept calculations in pence, or £ written in decimal form.<br><br>Conclusion in figures; ignore written conclusion.                                                                                                                                                                                                                                                                                                                                                                            |
| 11             | $\frac{40}{560}$ oe | M1<br>A1                   | for correct start to method<br>eg $600 - 560 (= 40)$ <b>or</b> $\frac{600}{560}$ oe ( $= 1.07(14\dots)$ )<br><b>OR</b> correct answer but not a fraction<br>eg $0.07(14\dots)$<br><br>for any equivalent fraction to $\frac{40}{560}$ eg $\frac{1}{14}$                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 12             | 69.2                | B1<br>P1<br>P1<br>P1<br>A1 | for a correct measurement of either length or width,<br>eg $11.5$ (cm) <b>or</b> $5.8$ (cm)<br><br>for process to find actual dimensions,<br>eg $[\text{length}] \times 200 (= 2300)$ <b>or</b> $[\text{width}] \times 200 (= 1160)$<br><br>(indep) for process to convert to metres $[\text{length in cm}] \div 100$<br>eg " $2300$ " $\div 100 (= 23)$ <b>or</b> " $1160$ " $\div 100 (= 11.6)$<br><br>(indep) for process to find the perimeter,<br>eg " $23$ " $\times 2 + "11.6" \times 2 (= 69.2)$ <b>or</b><br>" $11.5$ " $\times 2 + "5.8" \times 2 (= 34.6)$<br>for an answer in the range $67.6$ to $70.8$ | Allow measurements $11.3$ to $11.7$ cm and $5.6$ to $6.0$ cm<br>NB: could work in mm<br>[length] in the range $11.0$ to $12.0$<br>[width] in the range $5.0$ to $6.5$<br>NB: could work in mm<br>This mark can be awarded for the conversion of any amount in cm to m (ie not from an area)<br><br>calculations could be in cm or in m and could be scaled or unscaled figures<br><br>SC: award 3 marks for an answer in the range $67.6$ to $70.8$ using measurements outside the above ranges |



| Paper: IMA1/1F |                          |      |                                                                                                                                                       |                                                                                                                                                                                                                 |
|----------------|--------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                   | Mark | Mark scheme                                                                                                                                           | Additional guidance                                                                                                                                                                                             |
| 15 (a)         | 420                      | P1   | starts process, eg $300 \div 5 (= 60)$ <b>or</b> $200 \div 2 (= 100)$<br><b>OR</b> builds up ratio to at least 300 ml orange juice with one error     | May be seen as $"60" \times 7$<br>"60" must come from correct method                                                                                                                                            |
|                |                          | P1   | complete process, eg $"60" \times 5 + "60" \times 2$ or $300 : 120$                                                                                   |                                                                                                                                                                                                                 |
|                |                          | A1   | cao                                                                                                                                                   |                                                                                                                                                                                                                 |
|                |                          | C1   | explains that it will have no effect with reason,<br>eg because he only needs 120 ml of lemonade<br>because he has no more orange juice to use        |                                                                                                                                                                                                                 |
| (b)            | explanation              | C1   | explains that it will have no effect with reason,<br>eg because he only needs 120 ml of lemonade<br>because he has no more orange juice to use        |                                                                                                                                                                                                                 |
| 16             | No and explanation       | C1   | 'No' and explanation with reference to multiplication or division<br>eg No he's incorrect as you would multiply the sides by a number rather than add |                                                                                                                                                                                                                 |
| 17 (a)         | 32, 48,<br>24, 8, 37, 11 | C1   | starts to interpret information, eg 48 or 8 in correct place                                                                                          | Incorrect notation with "37" and "61" can earn the method mark but not the accuracy mark.<br><br>Accept any equivalent fraction, decimal form 0.60(65...) or 0.61 or percentage form 60(.65...) % or 60% or 61% |
|                |                          | C1   | for $80 - 48 (= 32)$ and $"32" - 8 (= 24)$                                                                                                            |                                                                                                                                                                                                                 |
|                |                          | C1   | completes frequency tree correctly<br>SC: award C2 if all correct frequencies are shown as fractions of 80.                                           |                                                                                                                                                                                                                 |
|                |                          | M1   | ft for $\frac{a}{"61"}$ with $a < "61"$ or $\frac{"37"}{b}$ with $b > "37"$                                                                           |                                                                                                                                                                                                                 |
|                |                          | A1   | ft from diagram in (a)                                                                                                                                |                                                                                                                                                                                                                 |
| (b)            | $\frac{37}{61}$          | M1   | ft for $\frac{a}{"61"}$ with $a < "61"$ or $\frac{"37"}{b}$ with $b > "37"$                                                                           |                                                                                                                                                                                                                 |
|                |                          | A1   | ft from diagram in (a)                                                                                                                                |                                                                                                                                                                                                                 |

| Paper: 1MA1/1F |                 |      |                                                                                                                                                                     |                                                                                                 |
|----------------|-----------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Question       | Answer          | Mark | Mark scheme                                                                                                                                                         | Additional guidance                                                                             |
| 19 (a)         | $x^2 - 4x$      | B1   | cao                                                                                                                                                                 |                                                                                                 |
|                | (b) $5(3y - 2)$ | B1   | cao                                                                                                                                                                 |                                                                                                 |
|                | (c) 9           | M1   | for a correct first stage, eg. expanding brackets, $7 \times f - 7 \times 5 (= 28)$ oe<br>or for division of both sides by 7, eg. $\frac{7(f-5)}{7} = \frac{28}{7}$ |                                                                                                 |
|                |                 | A1   | cao                                                                                                                                                                 |                                                                                                 |
| 20             | $3n - 2$        | B2   | for $3n - 2$ oe                                                                                                                                                     | Accept a different variable, eg. $3x - 2$<br>$n = 3n - 2$ gets B1 only<br>$n + 3$ gets NO marks |
|                |                 | (B1) | for $3n + k$ where $k \neq -2$ or is absent unambiguously shown)                                                                                                    |                                                                                                 |
| 21             | Shown           | M1   | for conversion to improper fractions eg. $\frac{7}{3}$ or $\frac{15}{4}$                                                                                            | Need not be shown with operators                                                                |
|                |                 | M1   | (dep) for method to multiply fractions,<br>eg. $\frac{7 \times 15}{3 \times 4} (= \frac{105}{12})$ or $\frac{28 \times 45}{12 \times 12} (= \frac{1260}{144})$ oe   |                                                                                                 |
|                |                 | C1   | for complete working showing each stage as far as $\frac{35}{4}$ or $8\frac{9}{12}$                                                                                 |                                                                                                 |
| 22             | B C D A         | B2   | cao                                                                                                                                                                 |                                                                                                 |
|                |                 | (B1) | for two or three correct)                                                                                                                                           |                                                                                                 |
| 23             | A & D           | B1   | cao                                                                                                                                                                 |                                                                                                 |



| Paper: 1MA1/3F |         |                   |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------|---------|-------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Working | Answer            | Mark                 | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 20             |         | 1.01              | P1<br>P1<br>P1<br>A1 | fruit syrup $15 \times 1.4$ (= 21) or water $280 \times 0.99$ (= 277.2) or apple juice $25 \times 1.05$ (= 26.25)<br>(dep P1) for complete process to find the total mass e.g. "277.2" + "26.25" + "21" (= 324.45) or a weighted density eg $15 \times 1.4 \div 320$ (= 0.065625) or $280 \times 0.99 \div 320$ (= 0.86625) or $25 \times 1.05 \div 320$ (= 0.08203125)<br>(dep P2) for complete process to find the density eg "324.45" $\div 320$ (=1.01..) or "0.065625" + "0.86625" + "0.08203125" (= 1.0139..) 1.01 to 1.014 |
| 21             |         | Shown (supported) | M1<br>C1             | method to divide a pair of corresponding sides, eg $7.5 \div 3$ (= 2.5) or $3 \div 7.5$ (= 0.4), or states scale factor is 2.5 or 0.4 or method to work out the size of an angle, eg $\tan^{-1}\left(\frac{7.5}{10}\right)$ (= 36.8 to 36.9)<br>shows or states that all sides are enlarged by the same factor or works out a pair of corresponding angles and states that the two triangles have the same angles                                                                                                                 |
| 22 (a)         |         | 12, 4, 2, 1.2, 1  | B2 (B1)              | for fully correct table (allow fractions or decimals) for 3 or 4 of 12, 4, 2, 1.2, 1                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (b)            |         | Correct curve     | M1<br>A1             | ft (dep on B1 in (a)) for plotting at least 6 points from their table correctly for a fully correct curve                                                                                                                                                                                                                                                                                                                                                                                                                         |



| Paper: 1MA1/3F |                          |                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                 |
|----------------|--------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                   | Mark                             | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Additional guidance                                                                                                                                                                                                                                                                                                                             |
| 8              | Yes with correct figures | P1<br><br>P1<br><br>P1<br><br>C1 | begins to work with proportion eg $20 \div 2 (=10)$ <b>or</b> $20 \div 5 (=4)$ <b>or</b> $2.38 \div 2 (=1.19)$ <b>or</b> $5.60 \div 5 (=1.12)$<br><br>full process to find the cost of 20 pens <b>or</b> 20 folders<br>eg. $20 \div 2 \times 2.38 (=23.8)$ <b>or</b> $20 \div 5 \times 5.60 (=22.4)$ <b>or</b> $2.38 \div 2 \times 20 (=23.8)$ <b>or</b> $5.60 \div 5 \times 20 (=22.4)$<br><br>full process to find total price <b>or</b> amount remaining<br>eg “23.8” + “22.4” (=46.2) <b>or</b> $50 - “23.8” - “22.4” (=3.8)$<br><br>Yes with correct figures eg 46.2 <b>or</b> 3.8 (left) | Throughout monetary units not required; trailing zeros not needed.<br>Can work in pence throughout<br><br><br><br>‘Yes’ might be implied from working eg $46.2 < 50$ or a statement that 3.8 is left, but 46.2 alone must also show an answer such as ‘Yes’ (may be written elsewhere).<br>Working leading to 46.2 must be shown for this mark. |
| 9              | (a) Trapezium            | B1                               | cao                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Accept in either order.                                                                                                                                                                                                                                                                                                                         |
|                | (b) C and D              | B1                               | cao                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                 |
| 10             | Reflection drawn         | C1                               | for accurate reflection drawn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Can be hand drawn.<br>Need not be shaded.                                                                                                                                                                                                                                                                                                       |
| 11             | 40                       | P1<br><br>P1<br><br>A1           | for $100 - 30 (=70)$ <b>or</b> $1 - 0.3 (=0.7)$ <b>or</b> $1 - \frac{3}{10} (= \frac{7}{10})$ <b>or</b> $28 \div 7 \times 3 (=12)$<br><br>for a complete process eg $28 \div (“70” \div 10) \times 10$ <b>or</b> $28 + “12”$<br><br>cao                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                 |



| Paper: 1MA1/2F |                         |                                                        |                                                                                                                                                                                                                          |                                                                                                                                                 |
|----------------|-------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                  | Mark                                                   | Mark scheme                                                                                                                                                                                                              | Additional guidance                                                                                                                             |
| 26             | Shown with reason given | M1                                                     | for deriving a suitable equation,<br>eg $4x + 15 + 2x + 15 + 4x + 8 + 3x - 3 = 360$ or $13x + 35 = 360$<br><b>or</b> $4x + 15 + 2x + 15 = 180$ or $6x + 30 = 180$<br><b>or</b> $4x + 8 + 3x - 3 = 180$ or $7x + 5 = 180$ | May be seen in an equation<br><br><br><br><br><br><br><br><br><br>If starting with an equation = 180 need to substitute into the opposite pair. |
|                |                         | M1                                                     | (dep) for a method to isolate terms in $x$ ,<br>eg $4x + 2x + 4x + 3x = 360 - 15 - 15 - 8 + 3$<br><b>or</b> $4x + 2x = 180 - 15 - 15$<br><b>or</b> $4x + 3x = 180 - 8 + 3$                                               |                                                                                                                                                 |
|                |                         | A1                                                     | for solving equation to $x = 25$                                                                                                                                                                                         |                                                                                                                                                 |
|                |                         | C1                                                     | for substituting $x = 25$ into $A + B$ or $C + D$ and showing = 180, and gives a suitable statement, eg co-interior/allied angles (sum to 180),<br><b>or</b> since $A + B = 180$ the lines are parallel                  |                                                                                                                                                 |
|                | Shown                   | <b>Alternative solution assuming it is a trapezium</b> |                                                                                                                                                                                                                          |                                                                                                                                                 |
|                |                         | M1                                                     | for deriving a suitable equation,<br>eg $4x + 15 + 2x + 15 = 4x + 8 + 3x - 3$ or $6x + 30 = 7x + 5$                                                                                                                      |                                                                                                                                                 |
|                |                         | M1                                                     | (dep) for a method to isolate terms in $x$ ,<br>eg $15 + 15 - 8 + 3 = 4x + 3x - 4x - 2x$                                                                                                                                 |                                                                                                                                                 |
|                |                         | A1                                                     | for solving equation to $x = 25$                                                                                                                                                                                         |                                                                                                                                                 |
|                |                         | C1                                                     | for a fully correct statement, eg since $A + B = 180$ the lines are parallel                                                                                                                                             |                                                                                                                                                 |
|                |                         | 27                                                     | 2                                                                                                                                                                                                                        |                                                                                                                                                 |
| A1             | cao                     |                                                        |                                                                                                                                                                                                                          |                                                                                                                                                 |



| Paper 1MA1: 2F |         |             |      |                                                                                                                                                                                |
|----------------|---------|-------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Working | Answer      | Mark | Notes                                                                                                                                                                          |
| 20 (a)         |         | 57.1        | P1   | for a process to find time from Liverpool to Manchester, eg. $56 \div 70 (= 0.8 \text{ (hrs) or } 48 \text{ (mins)})$                                                          |
|                |         |             | P1   | for a process to find the total distance, eg $56 + 61 (= 117)$ or the total time, eg “48” + 75 (= 123) or “0.8” + $\frac{75}{60} (= 2.05)$ , with consistent units of time     |
|                |         |             | P1   | (dep P2) for a correct process to find average speed with consistent units of time, eg. “117” $\div$ “2.05” or “117” $\div$ “123”                                              |
|                |         |             | A1   | for answer in the range 57 to 57.1                                                                                                                                             |
|                |         |             | C1   | for explaining that the time taken for the two parts of the journey must be the same or the distance from Leeds to York is $\frac{3}{4}$ the distance from Barnsley to York oe |
| 21 (a)         |         | 3.9         | M1   | for a ratio of $\frac{8.1}{5.4} (= 1.5)$ oe or $\frac{5.4}{8.1} (= 0.66\ldots)$ oe or $\frac{2.6}{5.4} (= 0.48\ldots)$ oe or $\frac{5.4}{2.6} (= 2.07\ldots)$ oe               |
|                |         |             | A1   | cao                                                                                                                                                                            |
|                |         |             | M1   | for $\frac{5.4}{8.1} \times 6.15 (= 4.1)$ or $\frac{2.7}{8.1} \times 6.15$ oe or ft “scale factor” from (a)                                                                    |
|                |         |             | A1   | cao                                                                                                                                                                            |
|                |         |             |      |                                                                                                                                                                                |
| (b)            |         | explanation |      |                                                                                                                                                                                |
|                |         |             |      |                                                                                                                                                                                |



| Paper: 1MA1/3F |                |      |                                                                                                                                                                                         |                                                                                                                                                  |
|----------------|----------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer         | Mark | Mark scheme                                                                                                                                                                             | Additional guidance                                                                                                                              |
| 27 (a)         | 9.6            | M1   | for a correct ratio,<br>eg $\frac{12.6}{8.4} (= 1.5)$ <b>or</b> $\frac{8.4}{12.6} (= 0.66\ldots)$<br><b>or</b> $\frac{6.4}{8.4} (= 0.76\ldots)$ <b>or</b> $\frac{8.4}{6.4} (= 1.31)$ oe | Decimal equivalents can be truncated or rounded to 2 dp<br>Accept equivalent methods to use a sf<br>eg $\frac{6.4}{2} + 6.4$ (indicative of 1.5) |
|                |                | A1   | cao                                                                                                                                                                                     |                                                                                                                                                  |
|                |                | M1   | for $15 \div "1.5"$ <b>or</b> $15 \times "0.66\ldots"$ or ft their ratio from part (a) oe                                                                                               |                                                                                                                                                  |
|                |                | A1   | cao                                                                                                                                                                                     |                                                                                                                                                  |
| (b)            | 10             |      |                                                                                                                                                                                         | Award the method mark for any (equivalent) complete method shown.                                                                                |
| 28             | $g = 2T^2 - 6$ | M1   | for $T^2 = \frac{g+6}{2}$ <b>or</b> $\sqrt{2} \times T = \sqrt{g+6}$                                                                                                                    | Can only award this mark if the first M mark has been awarded.                                                                                   |
|                |                | M1   | (dep) for $T^2 \times 2 = g + 6$ <b>or</b> $(\sqrt{2} \times T)^2 = g + 6$ oe                                                                                                           |                                                                                                                                                  |
|                |                | A1   | for $g = 2T^2 - 6$ oe                                                                                                                                                                   |                                                                                                                                                  |



| Paper: 1MA1/1F |        |      |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                     |
|----------------|--------|------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer | Mark | Mark scheme                                                                                                                               | Additional guidance                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                     |
| 28             | 16     | P1   | for process to formulate an equation or inequality, eg $2x + 3x + 10 = 90$<br><b>or</b><br>for $90 - 10$                                  | *denotes an equality or inequality symbol<br>Accept equivalent forms                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                     |
|                |        | P1   | for a process to solve the equation or inequality by isolating terms in $x$ ,<br>eg $5x = 90 - 10$<br><b>or</b><br>for $(90 - 10) \div 5$ | Award P2 for an embedded answer of 16, which could be shown on the diagram as 32, 48, (10) or written as $x$ embedded in working in an equation.                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                     |
|                |        | A1   | cao<br><br>SC B1 for $x = 34$ or for a value in the range $15 \leq x < 16$                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                     |
| 29             | (a)    | 6    | M1                                                                                                                                        | for stating a similar triangle relationship<br>eg $\frac{AB}{PQ} = \frac{AC}{PR} = \frac{CB}{RQ}$ or equivalent set of similar triangle expressions<br><br>or for substitution giving a fraction form for a scale factor<br>eg $\frac{10}{15} \left( = \frac{2}{3} \right)$ or $\frac{15}{10} \left( = \frac{3}{2} \right)$ or $\frac{9}{15} \left( = \frac{3}{5} \right)$ or $\frac{15}{9} \left( = \frac{5}{3} \right)$ | Accept any equivalent fractions or decimal equivalents given to at least 2 dp truncated or rounded                                                                                                  |
|                |        |      | A1                                                                                                                                        | cao                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                     |
|                | (b)    | 2    | P1                                                                                                                                        | for showing understanding of the properties of congruent triangles by finding an unknown length using matching of two sides,<br>eg $EG, KG$ and 6, or $HG, FG$ and 4<br><b>or</b><br>matching corresponding angles eg $HEG$ with $FKG$ and $EHG$ with $KFG$                                                                                                                                                               | Can be shown by any complete statements that are unambiguous<br><br>Can be shown in working using algebraic statements, or given by unambiguous marking on the diagram to confirm the relationship. |
|                |        |      | A1                                                                                                                                        | cao                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                     |

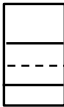
| Paper: 1MA1/3F |                    |      |                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                  |  |
|----------------|--------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--|
| Question       | Answer             | Mark | Mark scheme                                                                                                                                                                                                                                                                                                                                                                               | Additional guidance                                                                                                              |  |
| 24             | Yes<br>(supported) | P1   | for a process to find the volume of 1 tank<br>eg $\pi \times 40^2 \times 160$ (= 804247.7... or 804.2...or 256000 $\pi$ )                                                                                                                                                                                                                                                                 | Could be truncated or rounded                                                                                                    |  |
|                |                    | P1   | for complete process to find the volume of 4 tanks,<br>[volume of tank] $\times 4$<br>eg $\pi \times 40^2 \times 160 \times 4$ (= 3216990.8... or 3216.9... or 1024000 $\pi$ )<br><b>or</b> for process to find volume of fertiliser available per tank<br>eg $32 \times 1000 \div 4$ (= 8000)                                                                                            | For this mark [volume of tank] must come from a calculation involving $\pi$ , $r^2$ , $h$                                        |  |
|                |                    | P1   | for a process to find the amount of mixture for 1 tank<br>eg [volume of tank] $\div 101$ (= 7962.8...) or 4 tanks (= 31851.3...)<br><b>OR</b><br>for a process to find volume of mixture that 32 litres of fertiliser will make<br>eg $32000 \times 101$ (= 3232000) or $32 \times 101$ (= 3232)                                                                                          | For this mark [volume of tank] must come from a calculation involving $\pi$ , $r^2$ , $h$<br><b>or</b> be stated as their volume |  |
|                |                    | C1   | for Yes supported by correct figures shown<br>eg a comparable figure in the range 31.8 to 31.9 (litres)<br><b>or</b> in the range 31800 to 31900 with 32000 (cm <sup>3</sup> )<br><b>or</b> in the range 3216 to 3217 with 3232 (litres)<br><b>or</b> in the range 3216000 to 3217000 with 3232000 (cm <sup>3</sup> )<br><b>or</b> in the range 7958 to 7963 with 8000 (cm <sup>3</sup> ) | There are other possible pairs of values which can be used in the comparison                                                     |  |
| 25             | (a)                | 16   | M1                                                                                                                                                                                                                                                                                                                                                                                        | for a ratio of $\frac{20}{5}$ or $\frac{5}{20}$ or 4 or 0.25 or $\frac{5}{4}$ or $\frac{4}{5}$ or 1.25 or 0.8 oe                 |  |
|                |                    |      | A1                                                                                                                                                                                                                                                                                                                                                                                        | cao                                                                                                                              |  |
|                | (b)                | 5.5  | M1                                                                                                                                                                                                                                                                                                                                                                                        | for $22 \times "0.25"$ or $22 \div "4"$ oe                                                                                       |  |
|                |                    |      | A1                                                                                                                                                                                                                                                                                                                                                                                        | oe                                                                                                                               |  |



| Paper: 1MA1/3F |                        |          |                                                    |                                                                                                                     |  |
|----------------|------------------------|----------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--|
| Question       | Answer                 | Mark     | Mark scheme                                        | Additional guidance                                                                                                 |  |
| 1 (i)          | 43.7                   | B1       | cao                                                |                                                                                                                     |  |
| (ii)           | $\frac{5}{7}$          | B1       | $\frac{5}{7}$ oe                                   | Accept any other equivalent fraction to $\frac{5}{7}$                                                               |  |
| 2              | $\frac{3}{100}$        | B1       | cao                                                |                                                                                                                     |  |
| 3              | 1.2                    | B1       | oe                                                 | Accept $\frac{12}{10}$ or $\frac{6}{5}$                                                                             |  |
| 4              | 90                     | B1       | cao                                                |                                                                                                                     |  |
| 5 (a)          | Cuboid                 | B1       |                                                    |                                                                                                                     |  |
| (b)            | 12                     | B1       | cao                                                |                                                                                                                     |  |
| 6 (a)          | Cross at $\frac{1}{2}$ | B1       | cross at $\frac{1}{2}$                             | Accept any other marks near to $\frac{1}{2}$ if the intention is clear; do not accept if any other marks are shown. |  |
| (b)            | $\frac{2}{6}$          | B1       | $\frac{2}{6}$ oe                                   | Acceptable equivalents are equivalent fractions to $\frac{2}{6}$ eg $\frac{1}{3}$ decimal 0.33(...) or 33(..)%      |  |
| 7              | 1.94 m or 194 cm       | M1<br>A1 | for 188 or 0.06 or 194 or 1.94<br>1.94 m or 194 cm | Do not accept numerical answers without the correct unit shown.                                                     |  |

| Paper: 1MA1/1F |        |      |                                                                                                                                      |                                                                                                                   |
|----------------|--------|------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Question       | Answer | Mark | Mark scheme                                                                                                                          | Additional guidance                                                                                               |
| 23 (a)         | 600    | P1   | for starting process to calculate amount of flour<br>eg $60 \div 15 (= 4)$ <b>or</b> $3 \times 50 (= 150)$                           | 4 implied by 200g of sugar                                                                                        |
|                |        | P1   | for complete process eg $\frac{60}{15} \times "150"$                                                                                 |                                                                                                                   |
|                |        | A1   | cao                                                                                                                                  |                                                                                                                   |
|                |        |      |                                                                                                                                      |                                                                                                                   |
| (b)            | 2      | P1   | for process to calculate amount of butter<br>eg $\frac{60}{15} \times 2 \times 50 (= 400)$                                           | [butter] must be clearly stated or calculated, may be seen in part (a)                                            |
|                |        |      | <b>OR</b> for process to calculate the number of packs of butter needed<br>eg [butter] $\div 250$                                    |                                                                                                                   |
|                |        | A1   | cao                                                                                                                                  |                                                                                                                   |
|                |        |      |                                                                                                                                      |                                                                                                                   |
| 24             | 18     | M1   | for listing factors of 72 and 90, at least 4 correct for each (with no more than 1 incorrect in each list), could be in factor pairs | Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72<br>Factors of 90: 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90 |
|                |        |      | <b>OR</b> for the prime factors of 72 (2, 2, 2, 3, 3) <b>or</b> 90 (2, 3, 3, 5)                                                      |                                                                                                                   |
|                |        | A1   | for 18 or $2 \times 3^2$ oe                                                                                                          |                                                                                                                   |
|                |        |      | SC B1 for answer of 6 or 9 if M0 scored                                                                                              |                                                                                                                   |
| 25             | sketch | M1   | for sketch of a cylinder                                                                                                             | Hidden edges may or may not be shown                                                                              |
|                |        | A1   | sketch of cylinder, with dimensions shown                                                                                            |                                                                                                                   |
|                |        |      |                                                                                                                                      | 2 (cm) for radius or 4 (cm) for diameter and 5 (cm) for height                                                    |

| Paper: 1MA1/3F |                                                                                     |      |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                       |
|----------------|-------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                                                                              | Mark | Mark scheme                                                                                                                                                                                                                                                                                                                                                                           | Additional guidance                                                                                                   |
| 20             | 4                                                                                   | P1   | for start to process, eg $65 + 100 + 3 \times 5 + 1 \times 20 (= 200)$<br><b>or</b> $3 \times 80 (= 240)$                                                                                                                                                                                                                                                                             | May be part of an algebraic statement<br>eg $65 + 100 + 35 + 10x$<br><br>NB $80 - 35 (=45)$ leading to 4 gets 0 marks |
|                |                                                                                     | P1   | for $65 + 100 + 3 \times 5 + 1 \times 20 (= 200)$ <b>and</b> $3 \times 80 (= 240)$<br><b>or</b> " $240$ " – $100 - 65 (=75)$                                                                                                                                                                                                                                                          |                                                                                                                       |
|                |                                                                                     | P1   | for process to find value of £10 notes in Carl's wallet,<br>eg " $240$ " – " $200$ " ( $= 40$ )<br><b>or</b> for " $75$ " – $3 \times 5 - 1 \times 20 (=40)$                                                                                                                                                                                                                          |                                                                                                                       |
|                |                                                                                     | A1   | cao                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                       |
| 21 (a)         | 25                                                                                  | B1   | cao                                                                                                                                                                                                                                                                                                                                                                                   | If figures are given as part of the answer they must be correct                                                       |
| (b)            | Simon with reason                                                                   | C1   | for Simon with reason<br><b>Acceptable examples</b><br>Simon; he uses more trials<br>Simon; he does 10 times more<br>Simon, since $100 > 10$<br>Simon because he threw it more frequently / often<br>Simon since he has a larger range of results<br><b>Not acceptable examples</b><br>Paula ....<br>Simon (unsupported)<br>Simon because he threw it 100 times<br>He gets more tails |                                                                                                                       |
| 22             |  | M1   | for square, side 6 cm or complete plan with incorrect scale                                                                                                                                                                                                                                                                                                                           | Do not award if the 6 cm square is included with a triangle attached externally (eg elevation)                        |
|                |                                                                                     | A1   | cao                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                       |

| Paper: 1MA1/2F |                               |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                           |
|----------------|-------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                        | Mark                                       | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Additional guidance                                                                                                                                                                                                                                                                                       |
| 19             | Elevation                     | B2<br><br>(B1)                             | fully correct side elevation 5 high and 3 wide<br><br>for a rectangle 5 high and 3 wide or correct side elevation in the wrong orientation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                        |
| 20 (a)         | $6n + 1$                      | B2                                         | oe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                           |
| (b)            | Shown with supportive working | (B1)<br><br>M1<br><br>A1                   | for $6n + c$ where $c$ is an integer $\neq 1$ or is missing<br><br>for $8 - 6n = -58$ or $8 - 6 \times 11 (= -58)$<br><b>or</b> starts to list terms of the sequence, with at least 3 correct or any other valid method.<br><br>shown with working or an explanation, eg Yes and 11 or 2, -4, -10, -16, ....., -52, -58                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2, -4, -10, -16, -22, -28, -34, -40, -46, -52<br><br>May stop at -58 or ring if sequence continues                                                                                                                                                                                                        |
| 21             | 186.15                        | P1<br><br>P1<br><br>P1<br><br>P1<br><br>A1 | for correctly finding the area of at least three sections, eg 3 of<br>$11 \times 7 (= 77)$ , <b>or</b> $9 \times 7 (= 63)$ , <b>or</b> $\frac{1}{2} \times 11 \times 9 (= 49.5)$ , <b>or</b> $\frac{1}{4} \times \pi \times 7^2 (= 38.4845\dots)$<br><br>for a method to find the number of bags required for one area or a combination of areas<br>eg "77" $\div 14 (= 5.5)$ <b>or</b> "227.9845.." $\div 14 (= 16.2846\dots)$<br><br>for method to work out the total area for all four sections<br>eg "77" + "63" + "49.5" + "38.4845.." (= 227.9845...) <b>or</b> adding the exact number of bags per section for all four sections<br>eg "5.5" + "4.5" + "3.53.." + "2.74.." (= 16.28...) <b>or</b><br><br>for method to find the cost, eg integer number of bags $\times 10.95$<br><br>cao | Note a trapezium for the rectangle and triangle should be classed as two areas. Accept figures rounded or truncated to 1 dp or better throughout.<br><br>This mark is dependent upon correct processes seen for all four sections.<br><br>integer number of bags must come from area $\div 14$ rounded up |

| Paper: 1MA1/3F |                              |      |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
|----------------|------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| Question       | Answer                       | Mark | Mark scheme                                                                                                                                                                                                                                                                       | Additional guidance                                                                                                                                                                                                                                 |          |          |    |    |     |     |     |     |     |     |     |     |
| 19             | 7 cm by 8 cm rectangle drawn | M1   | for interpreting the front elevation, eg length = 8 or height = 4                                                                                                                                                                                                                 | May be seen on diagram or in part of a calculation                                                                                                                                                                                                  |          |          |    |    |     |     |     |     |     |     |     |     |
|                |                              | M1   | For beginning to draw plan,<br>eg. rectangle drawn with one side length of 8 cm or one of 7cm<br><br>or for interpreting front elevation to find missing dimension<br>eg $(224 \div "8") \div "4" (= 7)$                                                                          |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
|                |                              | C1   | for correct plan drawn                                                                                                                                                                                                                                                            | May be drawn in any orientation                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 20 (a)         | $4.68 \times 10^5$           | B1   | cao                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| (b)            | 0.000 503 7                  | B1   | cao                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 21             | 80                           | M1   | for complete method, eg $200 \times 0.4$<br>or for $\frac{80}{200}$ for the answer                                                                                                                                                                                                |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
|                |                              | A1   | cao                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 22 (a)         | 24.6                         | M1   | for finding 5 products within intervals (including end points) with not more than one error, may be seen near table.<br>eg $2 \times 12.5 (= 25)$ , $8 \times 17.5 (= 140)$ , $13 \times 22.5 (= 292.5)$ ,<br>$21 \times 27.5 (= 577.5)$ , $6 \times 32.5 (= 195)$<br>or for 1230 | <table><tr><th>Min <math>fx</math></th><th>Max <math>fx</math></th></tr><tr><td>20</td><td>30</td></tr><tr><td>120</td><td>160</td></tr><tr><td>260</td><td>325</td></tr><tr><td>525</td><td>630</td></tr><tr><td>180</td><td>210</td></tr></table> | Min $fx$ | Max $fx$ | 20 | 30 | 120 | 160 | 260 | 325 | 525 | 630 | 180 | 210 |
| Min $fx$       | Max $fx$                     |      |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 20             | 30                           |      |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 120            | 160                          |      |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 260            | 325                          |      |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 525            | 630                          |      |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
| 180            | 210                          |      |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |
|                |                              | M1   | for $\Sigma fx \div \Sigma f$<br>eg $("25" + "140" + "292.5" + "577.5" + "195") \div "50"$<br>or $"1230" \div "50"$                                                                                                                                                               | $\Sigma fx$ must come from 5 products,<br>$fx$ within intervals (including end points)                                                                                                                                                              |          |          |    |    |     |     |     |     |     |     |     |     |
|                |                              | A1   | for 24.6 oe                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                     |          |          |    |    |     |     |     |     |     |     |     |     |

| Paper: 1MA1/3F |                                                                                                                                                                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                              |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Question       | Answer                                                                                                                                                              | Mark | Mark scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Additional guidance                                          |
| 24 (a)         | Explanation                                                                                                                                                         | C1   | <p>for explanation</p> <p><b>Acceptable examples</b></p> <p>The height of the rectangle / it should be less than 4 cm</p> <p>The 4 cm sides are wrong / too long</p> <p>The height of the rectangle should be <math>2.6\dots / \sqrt{7}</math></p> <p>She's drawn the slanted height / not used the perpendicular height</p> <p>The height is smaller / not 4cm / wrong</p> <p>It should be shorter as the side is at an angle</p> <p>It should be on an angle, so the height is smaller</p> <p>The length / width / side is 4cm not the height</p> <p>She's drawn the face / the length and side / width of the rectangle</p> <p>She's drawn the length and side / width not the (length and the) height</p> <p><b>Not acceptable examples</b></p> <p>The rectangle should be wider</p> <p>The rectangle should be 6 squares high</p> <p>It doesn't tell us the height</p> <p>It should be smaller</p> <p>It's the front not the side</p> <p>It's not on a slant / it should be on a slant</p> <p>It goes up at an angle / it doesn't go straight up</p> <p>The length of the prism is 4 cm</p> <p>The length / width / side of the rectangle is 4 cm</p> <p>Side elevation is at a slant (not straight up)</p> |                                                              |
| (b)            | <div style="border: 1px solid black; width: 40px; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; width: 40px; height: 20px;"></div> | M1   | <p>for a 7 cm by 6 cm rectangle</p> <p><b>or</b></p> <p>for a 7 cm by <math>n</math> cm or <math>m</math> cm by 6 cm rectangle <b>and</b> dividing line which is parallel to the 7 cm or the <math>m</math> cm side</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                              |
|                |                                                                                                                                                                     | A1   | for a fully correct plan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Accept any orientation</p> <p>Accept freehand drawing</p> |

| Paper 1MA1: 2F |         |                 |      |                                                                                                                          |
|----------------|---------|-----------------|------|--------------------------------------------------------------------------------------------------------------------------|
| Question       | Working | Answer          | Mark | Notes                                                                                                                    |
| 18 cont.       |         |                 |      | OR                                                                                                                       |
|                |         |                 | P1   | for a process to find the maximum number of children, eg. $2600 \times 2 \div 7$ (= 742(.8...))                          |
|                |         |                 | P1   | for process to work out the total number of children, e.g. $117 \times 4$ (= 468)                                        |
|                |         |                 | A1   | for 468 and 742(.8...)                                                                                                   |
|                |         |                 | P1   | for $\frac{468}{742(.8...)} \times 100$ (= 63) or process to work out 60% of “742.8..” (= 445(7..))                      |
|                |         |                 | C1   | for a correct conclusion supported by correct figures e.g. 63% or 468 and 445(7...)                                      |
|                |         |                 |      | [Where appropriate, accept rounded or truncated values]                                                                  |
| 19             |         | Side elevation  | C2   | for the side elevation (4 cm by 2 cm rectangle with a solid line drawn 1 cm from the 2 cm edge, and correct orientation) |
|                |         |                 | [C1  | for the side elevation as a rectangle]                                                                                   |
|                |         | Front elevation | C2   | for the front elevation as a trapezium in correct orientation with base 4 cm, parallel sides 1 cm and 4 cm               |
|                |         |                 | [C1  | for the front elevation as a trapezium with two right angles]                                                            |
|                |         |                 |      | [Ignore incorrect or no labelling]                                                                                       |



| Paper: 1MA1/1F |                                                  |      |                                                                                                  |                                                                                                                                  |
|----------------|--------------------------------------------------|------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Question       | Answer                                           | Mark | Mark scheme                                                                                      | Additional guidance                                                                                                              |
| 23 (a)         | isosceles triangle,<br>base 6 cm, height<br>4 cm | M1   | for drawing an isosceles triangle<br><b>or</b> for drawing a triangle of base 6cm and height 4cm | Accept a freehand drawing<br>Only a single triangle is acceptable;<br>do <b>not</b> accept any attempted nets or 3-D<br>diagrams |
|                |                                                  | A1   | for a fully correct diagram                                                                      | Condone a perpendicular drawn from<br>base to vertex                                                                             |
|                | 96 cm <sup>2</sup>                               | M1   | for a method to find the area of a triangular face<br>eg $\frac{1}{2} \times 6 \times 5 (= 15)$  |                                                                                                                                  |
|                |                                                  | M1   | (dep) for finding the total surface area<br>eg $4 \times "15" + 6 \times 6$                      |                                                                                                                                  |
|                |                                                  | A1   | for a numerical answer of 96                                                                     | Ignore incorrect or absent units for this<br>mark                                                                                |
|                |                                                  |      | SC B1 for an answer of 84 if M0 scored                                                           | [The SC is from: $4 \times \frac{1}{2} \times 6 \times 4 + 6 \times 6$ ]                                                         |
| (b)            |                                                  | B1   | cm <sup>2</sup>                                                                                  | Ignore incorrect or absent numerical<br>answer for this mark                                                                     |

