



GuideMyGrades

— YOUR GOALS. OUR EXPERTISE. —

EDEXCEL INTERNATIONAL GCSE MATHS: QUESTIONS BY TOPIC

Measures, Accuracy & Estimation (N4)

International GCSE Mathematics A (4MA1) · Foundation tier

123 questions · 440 marks · Mark schemes included

Past papers June 2018 - June 2025 · 3 sub-topics

 guidemygrades.com

 @Guidemygrades

 @Guidemygrades

 @Guidemygrades

 info@guidemygrades.com

 Piccadilly Business Centre, Unit C, Aldow Enterprise Park
Blackett Street, Manchester, M12 6AE

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
N4a ROUNDING & ESTIMATION		36 Qs · 131 marks	5
1. Q19	IGCSE Paper 2FR November 2020	2	6
2. Q14	IGCSE Paper 1FR January 2022	2	7
3. Q16	IGCSE Paper 1FR June 2022	2	8
4. Q15	IGCSE Paper 2F June 2022	2	9
5. Q14	IGCSE Paper 2F November 2023	2	10
6. Q14	IGCSE Paper 1FR June 2024	2	11
7. Q16	IGCSE Paper 2F June 2024	2	12
8. Q16	IGCSE Paper 1F November 2024	2	13
9. Q13	IGCSE Paper 2F June 2025	2	14
10. Q11	IGCSE Paper 2F June 2018	3	15
11. Q12	IGCSE Paper 1F June 2019	3	16
12. Q6	IGCSE Paper 2FR June 2019	3	17
13. Q1	IGCSE Paper 1F November 2020	3	18
14. Q10	IGCSE Paper 1F November 2020	3	19
15. Q11	IGCSE Paper 1F November 2021	3	20
16. Q8	IGCSE Paper 2F January 2022	3	21
17. Q11	IGCSE Paper 1FR January 2023	3	22
18. Q14	IGCSE Paper 1F June 2023	3	23
19. Q11	IGCSE Paper 2FR June 2018	4	24
20. Q1	IGCSE Paper 1F January 2020	4	25
21. Q9	IGCSE Paper 1FR January 2020	4	26
22. Q1	IGCSE Paper 2F June 2021	4	27
23. Q1	IGCSE Paper 2FR January 2022	4	28
24. Q2	IGCSE Paper 1F June 2023	4	29
25. Q1	IGCSE Paper 1FR June 2018	5	30
26. Q3	IGCSE Paper 1F June 2019	5	31
27. Q1	IGCSE Paper 2FR June 2019	5	32
28. Q1	IGCSE Paper 1F January 2021	5	33
29. Q1	IGCSE Paper 1F June 2022	5	34
30. Q1	IGCSE Paper 1FR June 2023	5	35
31. Q1	IGCSE Paper 1F June 2024	5	36
32. Q1	IGCSE Paper 1F November 2024	5	37
33. Q1	IGCSE Paper 1FR June 2025	5	38
34. Q1	IGCSE Paper 2F June 2025	5	39



QUESTION	SOURCE	MARKS	PAGE
35. Q1	IGCSE Paper 2FR November 2020	6	40
36. Q2	IGCSE Paper 1F November 2021	6	41
N4b BOUNDS & ERROR INTERVALS		7 Qs · 16 marks	42
37. Q20	IGCSE Paper 2FR January 2019	2	43
38. Q19	IGCSE Paper 1FR January 2020	2	44
39. Q18	IGCSE Paper 2FR November 2020	2	45
40. Q19	IGCSE Paper 2F January 2022	2	46
41. Q18	IGCSE Paper 2F November 2024	2	47
42. Q17	IGCSE Paper 1FR June 2025	2	48
43. Q20	IGCSE Paper 2F January 2023	4	49
N4c UNITS, TIME & MONEY		80 Qs · 293 marks	50
44. Q8	IGCSE Paper 2FR January 2019	2	51
45. Q9	IGCSE Paper 2FR June 2019	2	52
46. Q18	IGCSE Paper 2F January 2020	2	53
47. Q6	IGCSE Paper 2FR January 2020	2	54
48. Q2	IGCSE Paper 2F November 2020	2	55
49. Q11	IGCSE Paper 1F January 2021	2	56
50. Q9	IGCSE Paper 2F November 2024	2	57
51. Q3	IGCSE Paper 2F June 2018	3	58
52. Q8	IGCSE Paper 2FR June 2018	3	59
53. Q12	IGCSE Paper 1FR January 2019	3	60
54. Q3	IGCSE Paper 2F January 2019	3	61
55. Q2	IGCSE Paper 2FR January 2019	3	62
56. Q9	IGCSE Paper 2FR January 2019	3	63
57. Q7	IGCSE Paper 1FR June 2019	3	64
58. Q8	IGCSE Paper 2FR June 2019	3	65
59. Q5	IGCSE Paper 2FR January 2020	3	66
60. Q5	IGCSE Paper 1F November 2020	3	67
61. Q6	IGCSE Paper 1FR November 2020	3	68
62. Q8	IGCSE Paper 2F November 2020	3	69
63. Q3	IGCSE Paper 1F January 2021	3	70
64. Q6	IGCSE Paper 1F January 2021	3	71
65. Q8	IGCSE Paper 2F January 2021	3	72
66. Q6	IGCSE Paper 1F June 2021	3	73
67. Q9	IGCSE Paper 1F June 2021	3	74
68. Q6	IGCSE Paper 2F June 2021	3	75
69. Q8	IGCSE Paper 1F January 2022	3	76
70. Q12	IGCSE Paper 2F June 2022	3	77
71. Q5	IGCSE Paper 2FR June 2022	3	78
72. Q8	IGCSE Paper 2FR June 2022	3	79
73. Q5	IGCSE Paper 1FR January 2023	3	80



QUESTION	SOURCE	MARKS	PAGE
74. Q6	IGCSE Paper 2F January 2023	3	81
75. Q4	IGCSE Paper 1F June 2023	3	82
76. Q14	IGCSE Paper 2F June 2023	3	83
77. Q4	IGCSE Paper 2F November 2023	3	84
78. Q12	IGCSE Paper 2F June 2024	3	85
79. Q5	IGCSE Paper 2FR June 2024	3	86
80. Q8	IGCSE Paper 2FR June 2024	3	87
81. Q4	IGCSE Paper 2FR June 2025	3	88
82. Q9	IGCSE Paper 1F January 2020	4	89
83. Q12	IGCSE Paper 1F January 2020	4	90
84. Q4	IGCSE Paper 1FR January 2020	4	91
85. Q11	IGCSE Paper 2FR January 2020	4	92
86. Q7	IGCSE Paper 1FR November 2020	4	93
87. Q4	IGCSE Paper 1FR January 2021	4	94
88. Q12	IGCSE Paper 2F January 2021	4	95
89. Q8	IGCSE Paper 2FR January 2021	4	96
90. Q5	IGCSE Paper 1F November 2021	4	97
91. Q4	IGCSE Paper 2F November 2021	4	98
92. Q7	IGCSE Paper 2F November 2021	4	99
93. Q5	IGCSE Paper 1F January 2022	4	100
94. Q7	IGCSE Paper 1F June 2022	4	101
95. Q10	IGCSE Paper 2FR June 2022	4	102
96. Q2	IGCSE Paper 1F January 2023	4	103
97. Q6	IGCSE Paper 1F January 2023	4	104
98. Q5	IGCSE Paper 2FR January 2023	4	105
99. Q9	IGCSE Paper 2FR January 2023	4	106
100. Q10	IGCSE Paper 2FR January 2023	4	107
101. Q11	IGCSE Paper 1F June 2023	4	108
102. Q6	IGCSE Paper 1FR June 2023	4	109
103. Q10	IGCSE Paper 2F June 2023	4	110
104. Q7	IGCSE Paper 2FR June 2023	4	111
105. Q6	IGCSE Paper 1F November 2023	4	112
106. Q7	IGCSE Paper 2F November 2023	4	113
107. Q7	IGCSE Paper 1F June 2024	4	114
108. Q8	IGCSE Paper 1FR June 2024	4	115
109. Q8	IGCSE Paper 2F June 2024	4	116
110. Q6	IGCSE Paper 1F November 2024	4	117
111. Q7	IGCSE Paper 2F November 2024	4	118
112. Q12	IGCSE Paper 1F June 2025	4	119
113. Q9	IGCSE Paper 2F June 2025	4	120
114. Q7	IGCSE Paper 2FR June 2025	4	121



QUESTION	SOURCE	MARKS	PAGE
115. Q4	IGCSE Paper 1F June 2018	5	122
116. Q3	IGCSE Paper 2FR January 2021	5	123
117. Q5	IGCSE Paper 2F January 2023	5	124
118. Q6	IGCSE Paper 1F January 2019	6	125
119. Q8	IGCSE Paper 2F June 2019	6	126
120. Q3	IGCSE Paper 1F January 2020	6	127
121. Q3	IGCSE Paper 1FR January 2022	6	128
122. Q21	IGCSE Paper 1F January 2023	7	129
123. Q7	IGCSE Paper 2FR January 2021	8	130



QUESTIONS

123 questions · 440 marks · 3 sub-topics

SUB-TOPIC N4a

ROUNDING & ESTIMATION

Sub-topic N4a · 36 questions · 131 marks · lowest tariff first



19 Nav has worked out $\frac{68.3 \times 42.8}{0.021}$ on his calculator.

His answer is 139 201.9048

Without using a calculator and using suitable approximations, check that his answer is sensible.
Show your working clearly.

(Total for Question 19 is 2 marks)



13 (a) Factorise $6x - 15$

.....
(1)

There are 200 bolts in each box of bolts.
Samira buys c boxes of bolts.

Samira uses the bolts she bought to fill packets of bolts.
There are 50 bolts in each packet of bolts.
Samira sells d packets of bolts.

The total number of bolts Samira has left is T

(b) Write down a formula for T in terms of c and d

.....
(3)

.....
(Total for Question 13 is 4 marks)

14 Work out the value of $\sqrt{7.4} + \frac{5.1^2}{3}$

Write down all the figures on your calculator display.

.....
(Total for Question 14 is 2 marks)



15 Bella and Millie share some money in the ratio 5 : 2

Bella receives 10.50 euros more than Millie.

Work out the total amount of money they share.

..... euros

(Total for Question 15 is 3 marks)

16 Work out the value of

$$\frac{15.2 \times 4.1}{8 - \sqrt{3.7}}$$

Write down all the figures on your calculator display.

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



15 Use your calculator to work out the value of

$$\frac{5.21 + 6.37}{9.8} + 8.3^2$$

Write down all the figures on your calculator display.

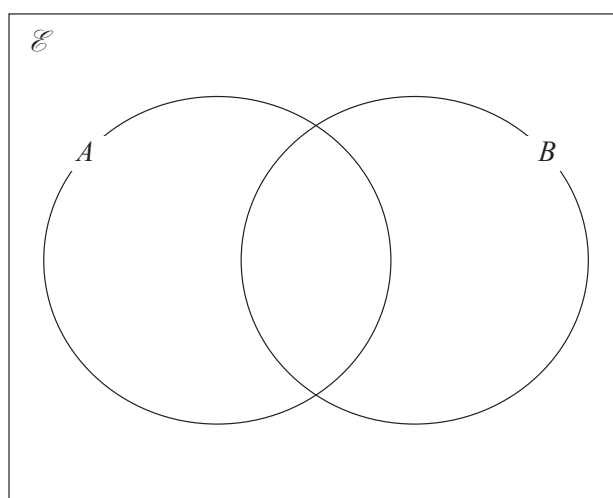
(Total for Question 15 is 2 marks)

16 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$$A = \{2, 3, 7, 8, 9\}$$

$$B = \{1, 2, 4, 5, 7, 8, 10\}$$

Complete the Venn diagram for this information.



(Total for Question 16 is 3 marks)

- 14 Work out the value of $\frac{5.2^2 + 8.7}{\sqrt{14.5}}$

Write down all the figures on your calculator display.

.....
(Total for Question 14 is 2 marks)

- 15 Yuan sells fudge in small bags and in large bags.

Small bag Weight 150 g Cost £1.80
--

Large bag Weight 400 g Cost £5

Work out which bag is the better value for money.
Show your working clearly.

(Total for Question 15 is 3 marks)



14 Use your calculator to work out the value of

$$\frac{\sqrt{17.8 \times 19.2}}{3.4^2 \times 0.23}$$

Write down all the figures on your calculator display.

.....
(Total for Question 14 is 2 marks)

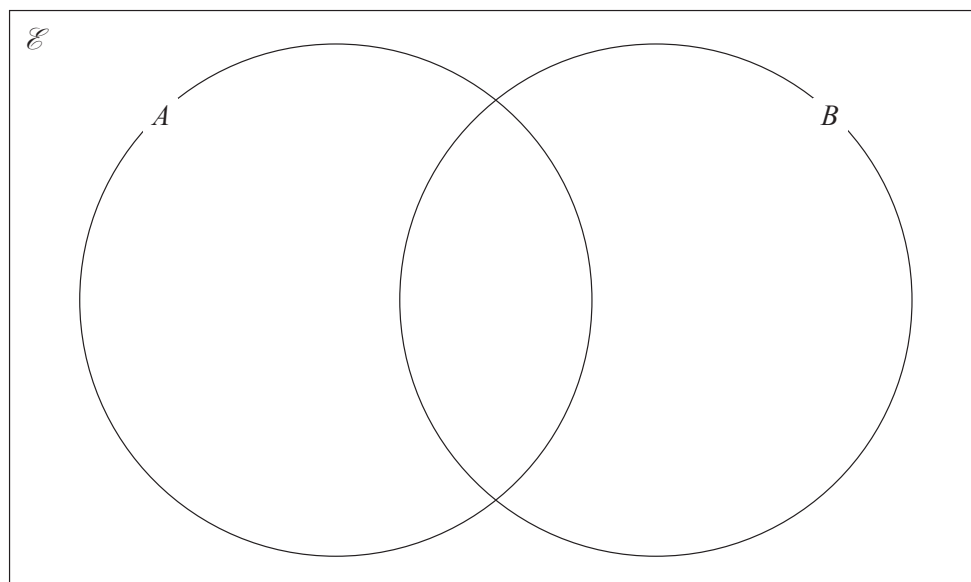


15 $\mathcal{E} = \{11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

$$A = \{11, 14, 16, 19\}$$

$$B = \{12, 14, 15, 16, 18, 20\}$$

Complete the Venn diagram for this information.



(Total for Question 15 is 3 marks)

16 Use your calculator to work out the value of

$$\frac{17.9}{8.61 + 2.36} - 1.2^2$$

Give your answer as a decimal.

Write down all the figures on your calculator display.

(Total for Question 16 is 2 marks)



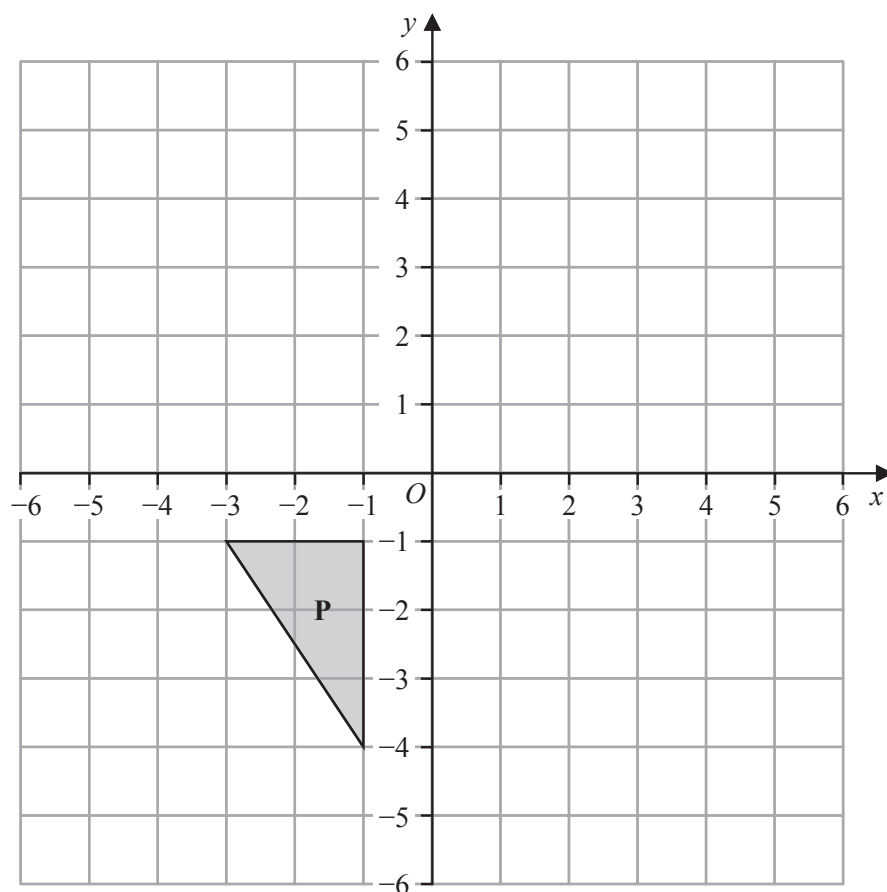
16 By rounding each number to one significant figure, work out an estimate for

$$31.4 \times 48.7$$

Show your working clearly.

(Total for Question 16 is 2 marks)

17



Reflect shape **P** in the line $x = 1$

(Total for Question 17 is 2 marks)



- 13 Work out the value of $\frac{9.75 - 1.4^2}{9.2 + \sqrt{6.3}}$

Write down all the figures on your calculator display.

(Total for Question 13 is 2 marks)

- 14 A company makes cars.

The company makes 125 cars each hour for 9 hours a day.

The company makes cars for 5 days each week.

24% of the cars the company makes are red.

Work out the number of red cars that the company makes each week.

(Total for Question 14 is 3 marks)



- 10 Last Thursday, 135 students each bought one item of fruit.
The table shows information about the 135 items of fruit they bought.

Fruit	apple	pear	orange	banana	peach
Number of students	36	15	27	33	24

One of the 135 students is chosen at random.

- (a) Find the probability that this student bought an apple or a banana.

.....
(2)

A pie chart is drawn for the information in the table.

- (b) Work out the size of the angle in the pie chart for oranges.

.....
(2)

(Total for Question 10 is 4 marks)

- 11 (a) Work out the value of $\frac{10.4}{5.1 - 2.7} + \frac{6.8 - 3.2}{9.5}$

Give your answer as a decimal.

Write down all the figures on your calculator display.

.....
(2)

- (b) Give your answer to part (a) correct to 3 significant figures.

.....
(1)

(Total for Question 11 is 3 marks)



- 12 (a) Use your calculator to work out the value of

$$\frac{24.3 - 16.8}{0.18} + \sqrt{67.4}$$

Write down all the figures on your calculator display.

.....
(2)

- (b) Write your answer to part (a) correct to 1 significant figure.

.....
(1)

(Total for Question 12 is 3 marks)

- 13 Each exterior angle of a regular polygon is 24°

Work out the number of sides of the polygon.

.....
(Total for Question 13 is 2 marks)



5 Here is a list of eight numbers.

10 23 27 30 42 52 74 81

From the list, write down

(i) a square number

(ii) a factor of 50

(iii) a prime number.

(Total for Question 5 is 3 marks)

6 (a) Work out the value of $\frac{9.24 \times 4.35}{6.57 + 2.19}$

Give your answer as a decimal.

Write down all the figures on your calculator display.

(2)

(b) Give your answer to part (a) correct to 2 significant figures.

(1)

(Total for Question 6 is 3 marks)



Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table gives information about the amount of crude oil, in barrels, produced per day by each of six countries in 2015

Country	Crude oil produced per day (number of barrels)
Australia	322 300
Congo	269 000
Gabon	213 300
South Sudan	220 000
Thailand	248 200
Vietnam	333 400

- (a) Write down the name of the country that produced the least number of barrels of crude oil.

.....
(1)

- (b) Work out the difference between the number of barrels of crude oil produced by Vietnam and the number of barrels of crude oil produced by Australia.

.....barrels
(1)

Thailand produced 248 200 barrels of crude oil.

- (c) Write 248 200 correct to the nearest thousand.

.....
(1)

(Total for Question 1 is 3 marks)



- 10 (a) Use your calculator to work out the value of $\frac{67.8 + 4.6^2}{\sqrt{56}}$

Write down all the figures on your calculator display.

.....
(2)

- (b) Give your answer to part (a) correct to 2 significant figures.

.....
(1)

(Total for Question 10 is 3 marks)



10 (a) Show that $\frac{3}{10} \div \frac{1}{4} = \frac{6}{5}$

(2)

(b) Show that $\frac{5}{6} - \frac{3}{4} = \frac{1}{12}$

(2)

(Total for Question 10 is 4 marks)

11 (a) Use your calculator to work out the value of $\frac{2.14^3 - 3.76}{\sqrt{1.24}}$

Write down all the figures on your calculator display.

(2)

(b) Write your answer to part (a) correct to 2 significant figures.

(1)

(Total for Question 11 is 3 marks)



7 $\frac{3}{8}$ of the members of a squash club are children.

$\frac{5}{6}$ of these children are right-handed.

What fraction of the members of the squash club are right-handed children?

Give your answer as a fraction in its simplest form.

Show your working clearly.

(Total for Question 7 is 3 marks)

8 By writing each value correct to one significant figure, work out an estimate for the value of

$$\frac{8.23 \times 181}{0.482}$$

Show your working clearly.

(Total for Question 8 is 3 marks)



11 (a) Work out the value of $\frac{2.5 + 3.6}{12.7} + \frac{8.2}{5 \times 3.6}$

Give your answer as a decimal.

Write down all the figures on your calculator display.

.....
(2)

(b) Write your answer to part (a) correct to 3 significant figures.

.....
(1)

.....
(Total for Question 11 is 3 marks)



14 (a) Work out the value of $\frac{9}{12.4} + \frac{5.3 \times 2.8}{9.64}$

Give your answer as a decimal.

Write down all the figures on your calculator display.

.....
(2)

(b) Write your answer to part (a) correct to 3 significant figures.

.....
(1)

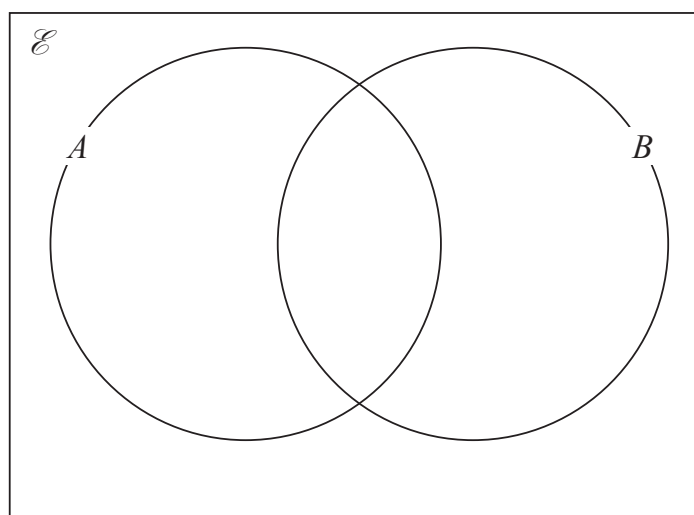
(Total for Question 14 is 3 marks)

15 $\mathcal{E} = \{5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$

$A = \{\text{odd numbers}\}$

$B = \{\text{multiples of 5}\}$

Complete the Venn diagram for this information.



(Total for Question 15 is 3 marks)

- 10 3 kg of carrots cost £1.35
5 kg of carrots and 2 kg of potatoes cost a total of £4.15

Find the cost of 1 kg of potatoes.

£.....

(Total for Question 10 is 3 marks)

- 11 (a) Find the cube root of 421.875

.....
(1)

- (b) (i) Work out the value of $\frac{7.61^2}{5.2 \times 3.5}$

Write down all the figures on your calculator display.

.....
(2)

- (ii) Write your answer to part (b)(i) correct to 2 significant figures.

.....
(1)

(Total for Question 11 is 4 marks)



Answer all TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table shows the land area, in km^2 , of each of six African countries.

Country	Land area (km^2)
Botswana	566 730
Kenya	569 140
Namibia	823 290
Somalia	627 340
Tanzania	885 800
Zambia	743 390

- (a) Write down the name of the country with the greatest land area.

.....
(1)

- (b) Write 823 290 correct to the nearest thousand.

.....
(1)

- (c) Work out the difference between the land area of Botswana and the land area of Kenya.

..... km^2
(1)

The land area of the Gambia is $10\,120\text{ km}^2$

- (d) Write the number 10 120 in words.

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

(Total for Question 1 is 4 marks)



9 (a) Write 24.8635 correct to 3 significant figures.

.....
(1)

(b) Find the value of $\sqrt{50.41}$

.....
(1)

(c) Change $\frac{7}{8}$ to a percentage.

..... %
(2)

(Total for Question 9 is 4 marks)



Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table shows the length, in kilometres, of the coastline of each of five oceans.

Ocean	Length (kilometres)
Arctic	45 389
Atlantic	111 866
Indian	66 526
Pacific	135 663
Southern	17 968

- (a) Which of these oceans has the greatest length of coastline?

.....
(1)

- (b) Write the number 17 968 in words.

.....
(1)

- (c) Write the number 66 526 correct to the nearest thousand.

.....
(1)

- (d) Work out the total length of the coastlines of the Arctic Ocean and the Pacific Ocean.

..... kilometres
(1)

(Total for Question 1 is 4 marks)



Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table gives the total area of forest in each of six countries.

Country	Area of forest (km ²)
South Africa	92 410
Denmark	5871
El Salvador	2870
Bahamas	5150
Jamaica	3371
Syria	4910

- (a) Which of these six countries has the least total area of forest?

.....
(1)

- (b) Write down the value of the 4 in 92 410

.....
(1)

Two of the six countries each have a total area of forest of 5000 km² when rounded to the nearest thousand.

- (c) Write down the name of the two countries.

..... and
(1)

- (d) Write the number 3371 in words.

.....
(1)

(Total for Question 1 is 4 marks)



- 2 Melanie finds this information about the number of people, in millions, who speak each of five languages as their first language.

Language	Number of people (in millions)
Spanish	480
Greek	13
Mandarin Chinese	918
Tamil	75
Japanese	128

- (a) Which of these languages is the first language of the greatest number of people?

.....
(1)

More people speak Japanese as their first language than speak Greek as their first language.

- (b) How many more?

..... million
(1)

The number of people who speak Tamil as their first language is $\frac{1}{4}$ of the number of people who speak Bengali as their first language.

- (c) Work out the number of people who speak Bengali as their first language.

..... million
(1)

It is estimated that 861 700 people can speak Welsh.

- (d) Write 861 700 in words.

.....
(1)

(Total for Question 2 is 4 marks)



Answer ALL TWENTY SEVEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table gives information about the weights, in kilograms, of five animals.

Animal	Weight in kilograms
African buffalo	725
Indian elephant	3178
Giraffe	800
Pilot whale	2205
Walrus	1013

- (a) Which animal has the least weight?

.....
(1)

- (b) Write down the value of the 1 in the number 3178

.....
(1)

- (c) Work out the difference between 2205 and 1013

.....
(1)

The weight of a blue whale is 20 times the weight of the giraffe.

- (d) Work out the weight of the blue whale.

Give your answer in tonnes.

1 tonne = 1000 kg

..... tonnes
(2)

(Total for Question 1 is 5 marks)



- 3 The table gives the surface areas, in square kilometres, of six lakes in Africa.

Lake	Surface area (square kilometres)
Albert	5299
Malawi	29 500
Mweru	5120
Tanganyika	32 600
Turkana	6405
Victoria	68 879

- (a) Which of these lakes has the least surface area?

.....
(1)

- (b) Write the number 6405 in words.

.....
(1)

- (c) Write the number 68 879 correct to the nearest thousand.

.....
(1)

Sammy says that the surface area of Lake Malawi is about $5\frac{1}{2}$ times the surface area of Lake Albert.

- (d) Is Sammy correct?
Give a reason for your answer.

.....
.....
(2)

(Total for Question 3 is 5 marks)



Answer ALL TWENTY SEVEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table shows the distance, in kilometres, from London to each of five cities.

City	Distance (km)
Rio de Janeiro	9280
New York	5567
Manila	10 734
Sydney	16 983
Kolkata	7962

- (a) Write the number 9280 in words.

.....
(1)

- (b) Which of the five cities is nearest to London?

.....
(1)

- (c) Write down the value of the 7 in 10 734

.....
(1)

- (d) Which of the five cities is **seven thousand nine hundred and sixty two** kilometres from London?

.....
(1)

- (e) Write the number 16 983 correct to the nearest thousand.

.....
(1)

(Total for Question 1 is 5 marks)



Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table shows the height, in metres, of each of seven volcanoes.

Volcano	Height (metres)
Acamarachi	6046
Bazman	3490
Dona Juana	4150
Kamen	4585
Mount Ararat	5137
Ojos del Salado	6893
Semeru	3676

- (a) Which of these volcanoes has the greatest height?

.....
(1)

- (b) Write down the value of the 8 in the number 4585

.....
(1)

- (c) Write the number 6046 in words.

.....
(1)

- (d) Write the number 5137 correct to the nearest hundred.

.....
(1)

- (e) Work out the difference in the height of the Acamarachi volcano and the height of the Semeru volcano.

..... metres
(1)

(Total for Question 1 is 5 marks)



Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 Nav found the following table that shows the age, in years, of each of seven cities.

City	Age (years)
Cadiz	3124
Suzhou	2534
Jenin	4469
Istanbul	2704
Nanjing	2516
Gaziantep	5669
Alexandria	2351

- (a) Write down the name of the city with the greatest age.

.....
(1)

- (b) Write the number 2534 in words.

.....
(1)

- (c) Write the number 2351 correct to the nearest ten.

.....
(1)

- (d) Work out the difference between the age of Cadiz and the age of Nanjing.

..... years
(1)

A millennium is 1000 years.

- (e) What is the age of Jenin in whole millenniaums?

..... millenniaums
(1)

(Total for Question 1 is 5 marks)



Answer ALL TWENTY EIGHT questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table shows the number of steps Polly walked on each of five days.

Day	Number of steps
Monday	8 927
Tuesday	11 362
Wednesday	9 653
Thursday	10 980
Friday	6 411

- (a) On which of these days did Polly walk the greatest number of steps?

.....
(1)

- (b) Write the number 9653 in words.

.....
(1)

- (c) Write the number 8927 correct to the nearest ten.

.....
(1)

- (d) Write down the value of the 9 in the number 10 980

.....
(1)

- (e) Work out the sum of the number of steps Polly walked on Thursday and on Friday.

.....
(1)

(Total for Question 1 is 5 marks)



Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table gives information about the lengths, in kilometres, of the shorelines of seven lakes.

Lake	Length of shoreline (km)
Nasser	8947
Kentucky	3808
Saimaa	13 600
Volta	4763
Huron	6124
Inari	2758
Superior	4361

- (a) Which of these seven lakes has the longest shoreline?

.....
(1)

- (b) Write the number 6124 in words.

.....
(1)

The shoreline of Lake Nasser is longer than the shoreline of Lake Inari.

- (c) How much longer?

..... km
(1)

- (d) Write down the value of the 6 in the number 4763

.....
(1)

Two numbers in the table round to 4000 when written correct to the nearest thousand.

- (e) Write down these two numbers.

..... and
(1)

(Total for Question 1 is 5 marks)



Answer ALL TWENTY SEVEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table gives the lengths, in metres, of five road tunnels.

Name of tunnel	Length of tunnel (metres)
Arlberg	13 972
Hsuehshan	12 940
Laerdal	24 512
St Gotthard	16 918
Jinpingshan	17 540

- (a) Which of these five tunnels has the greatest length?

.....
(1)

- (b) Write down the value of the 9 in the number 13 972

.....
(1)

The length of one of the tunnels, when rounded to the nearest thousand, is 17 000 metres.

- (c) Write down the name of this tunnel.

.....
(1)

- (d) Write the number 12 940 in words.

.....
(1)

- (e) Work out the total length of the Arlberg tunnel and the Jinpingshan tunnel.

..... metres
(1)

(Total for Question 1 is 5 marks)



Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The table shows the land area, in km², of each of six US states.

State	Land area (km ²)
Arizona	294 207
Florida	138 887
Montana	376 962
New Mexico	314 161
Oregon	248 608
Washington	172 119

(a) Which one of these six US states has the greatest land area?

.....
(1)

(b) Write the number 314 161 correct to the nearest hundred.

.....
(1)

(c) Write down the value of the 4 in the number 294 207

.....
(1)

(d) Work out the sum of the land area of Oregon and the land area of Washington.

..... km²
(1)

The land area of Vermont is 23 871 km²

(e) Write the number 23 871 in words.

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

(Total for Question 1 is 5 marks)

Answer ALL TWENTY EIGHT questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** Cho finds this information about the areas, in square kilometres, of some South American countries.

Country	Area (square kilometres)
Paraguay	406 752
Suriname	163 800
Uruguay	173 626
Venezuela	926 690
Chile	756 100

- (a) Which of these countries has the largest area?

.....
(1)

- (b) Write the number 163 800 in words.

.....
(1)

- (c) Circle the word that describes the value of the 7 in 406 752

7 tenths 7 tens 7 hundreds 7 hundredths 7 thousandths

(1)

- (d) Write the number 173 626 correct to the nearest thousand.

.....
(1)

- (e) Work out the difference between the area of Chile and the area of Uruguay.

..... square kilometres
(1)

(Total for Question 1 is 5 marks)



Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** The table shows the depth of six ocean trenches.

Trench	Depth (metres)
Diamantina	8047
Eurasian Basin	4437
Philippine	10 540
Puerto Rico	8594
South Sandwich	8458
Tonga	10 882

- (a) Which of these trenches has the greatest depth?

.....
(1)

- (b) Write down the value of the 5 in the number 8594

.....
(1)

- (c) Write the number 4437 in words.

.....
(1)

When written correct to the nearest hundred, one of the numbers in the table is 8500

- (d) What is this number?

.....
(1)

The Mariana Trench is 2864 metres deeper than the Diamantina Trench.

- (e) Work out the depth of the Mariana Trench.

..... metres
(2)

(Total for Question 1 is 6 marks)



- 2 The table shows the average number of spectators per match, for each of six Spanish football teams, in one season.

Team	Average number of spectators per match
Real Betis	46 393
Valencia	38 699
Barcelona	65 731
Athletic Bilbao	37 378
Sevilla	33 069
Real Madrid	65 027

- (a) Which team had the lowest average number of spectators per match?

.....
(1)

- (b) Write the number 65 731 correct to the nearest thousand.

.....
(1)

- (c) Write down the value of the 6 in the number 38 699

.....
(1)

In one match, Sevilla played Valencia.

In the match, Sevilla had 8 shots on target and Valencia had 12 shots on target.

- (d) Write the ratio 8:12 in its simplest form.

.....
(1)

In the same match, Valencia had 72% possession of the ball.

- (e) Write 72% as a fraction in its simplest form.

.....
(2)

(Total for Question 2 is 6 marks)



SUB-TOPIC N4b

BOUNDS & ERROR INTERVALS

Sub-topic N4b · 7 questions · 16 marks · lowest tariff first



20 The length of a line is 12.3 cm, correct to 1 decimal place.

(a) Write down the upper bound of the length of the line.

(1) cm

(b) Write down the lower bound of the length of the line.

(1) cm

(Total for Question 20 is 2 marks)

21 Omar invests 6000 dirham for 4 years in a savings account.
He will get 1.5% per year compound interest.

Work out the total amount of interest Omar will have received by the end of 4 years.
Give your answer correct to the nearest dirham.

dirham

(Total for Question 21 is 3 marks)



19 The weight of a cat is 4.3 kg correct to 2 significant figures.

(a) Write down the upper bound of the weight of the cat.

..... kg
(1)

(b) Write down the lower bound of the weight of the cat.

..... kg
(1)

(Total for Question 19 is 2 marks)

20 Solve $x^2 - 5x - 36 = 0$
Show clear algebraic working.

.....
(Total for Question 20 is 3 marks)



- 17 Alexa has five cards.
Each card has a number on it.

The table gives information about the numbers on the five cards.

Total	Median	Mode	Range
45	8	5	10

Using the information in the table, complete each card by writing its number on it.

(Total for Question 17 is 3 marks)

- 18 The length of a book is 33.8 cm, correct to one decimal place.

(a) Write down the lower bound of the length of the book.

..... cm
(1)

(b) Write down the upper bound of the length of the book.

..... cm
(1)

(Total for Question 18 is 2 marks)



19 Each side of a regular octagon has a length of 18 mm, correct to the nearest 0.5 mm

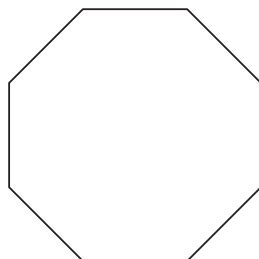


Diagram **NOT**
accurately drawn

(a) Write down the lower bound of the length of each side of the octagon.

..... mm

(1)

(b) Write down the upper bound of the length of each side of the octagon.

..... mm

(1)

(Total for Question 19 is 2 marks)



17 Show that $1\frac{5}{7} \times 2\frac{3}{16} = 3\frac{3}{4}$

(Total for Question 17 is 3 marks)

18 The length of a table is measured as 1.4 metres correct to one decimal place.

(a) Write down the upper bound of the length of the table.

..... metres
(1)

(b) Write down the lower bound of the length of the table.

..... metres
(1)

(Total for Question 18 is 2 marks)



17 The length of a ship is 142.8 m, correct to 1 decimal place.

(i) Write down the lower bound of the length of the ship.

..... m
(1)

(ii) Write down the upper bound of the length of the ship.

..... m
(1)

(Total for Question 17 is 2 marks)

18 Show that $2\frac{1}{4} \times 1\frac{5}{7} = 3\frac{6}{7}$

(Total for Question 18 is 3 marks)



20 The weight of a cake is 2.75 kg, correct to 2 decimal places.

(a) Write down the lower bound of the weight of the cake.

..... kg
(1)

(b) Write down the upper bound of the weight of the cake.

..... kg
(1)

Penny has worked out $\frac{81.3 \times 59.2}{1.9^2}$ on her calculator.

Her answer is 13 332.299 17

Penny's answer is not sensible.

(c) By rounding each number to one significant figure, work out a suitable estimate to show that her answer is not sensible.
Show your working clearly.

(2)

(Total for Question 20 is 4 marks)



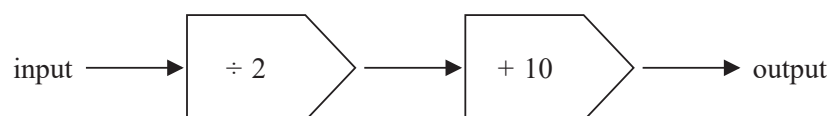
SUB-TOPIC N4c

UNITS, TIME & MONEY

Sub-topic N4c · 80 questions · 293 marks · lowest tariff first



7 Here is a number machine.



(a) Work out the output when the input is 8

(1)

(b) Work out the input when the output is 120

(2)

(Total for Question 7 is 3 marks)

8 A train journey started at 17 50 and finished at 02 25 the next day.

How long did the train journey take?

Give your answer in hours and minutes.

hours

minutes

(Total for Question 8 is 2 marks)



- 8 Sandeep has 1200 rupees to spend on pencils.
Each pencil costs 45 rupees.

Sandeep buys as many pencils as he can.

Work out how much change Sandeep should get.

..... rupees

(Total for Question 8 is 3 marks)

- 9 Anjali travels from Beijing to Shanghai by train.

The train leaves Beijing at 07 25

The train arrives in Shanghai at 13 15 the same day.

Work out how long the train takes to travel from Beijing to Shanghai.

Give your answer in hours and minutes.

..... hours minutes

(Total for Question 9 is 2 marks)



17 (a) Simplify $\frac{x^9}{x^2}$

.....
(1)

(b) Write $\frac{7^8 \times 7^4}{7^3}$ as a single power of 7

.....
(2)

(Total for Question 17 is 3 marks)

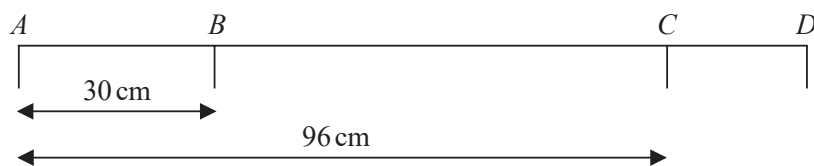
18 Change 32.4 m^3 into cm^3

..... cm^3

(Total for Question 18 is 2 marks)



5

Diagram **NOT**
accurately drawn

In the diagram, A , B , C and D are points on a straight line.

$$AB = 30 \text{ cm} \quad AC = 96 \text{ cm} \quad BC = 3CD$$

Work out the length of AD .

..... cm

(Total for Question 5 is 3 marks)

- 6 Diego left home on Tuesday at 07 50
He arrived home on the same Tuesday at 17 35

Work out the length of time that Diego was away from home on Tuesday.
Give your answer in hours and minutes.

..... hours minutes

(Total for Question 6 is 2 marks)



Answer ALL TWENTY FOUR questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Here is a list of numbers.

1	17	21	25	26	31	39	64
---	----	----	----	----	----	----	----

From this list, write down

(a) an even number

.....
(1)

(b) a multiple of 3

.....
(1)

(c) a prime number

.....
(1)

(d) a cube number

.....
(1)

(Total for Question 1 is 4 marks)

2 (a) Change 3 litres into millilitres.

.....millilitres
(1)

(b) Change 6500 grams into kilograms.

.....kilograms
(1)

(Total for Question 2 is 2 marks)



10 In Koko's shop

5 chocolate bars cost \$5.75

2 chocolate bars and 3 packets of sweets cost \$7.85

Work out the cost of one packet of sweets.

\$.....

(Total for Question 10 is 3 marks)

11 Akiko travelled from London to Tokyo by plane.

The plane left London at 18 40 on Friday.

The plane arrived in Tokyo the next day, at 06 25 London time.

How long did the flight take?

Give your answer in hours and minutes.

..... hours minutes

(Total for Question 11 is 2 marks)



9 Don got on a bus at 0735

He got off the bus at 1325

How long was Don on the bus?

Give your answer in hours and minutes.

..... hours minutes

(Total for Question 9 is 2 marks)

10 Here is a cuboid.

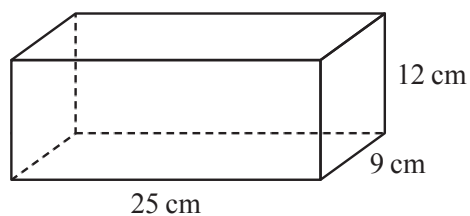


Diagram **NOT**
accurately drawn

Work out the volume of the cuboid.

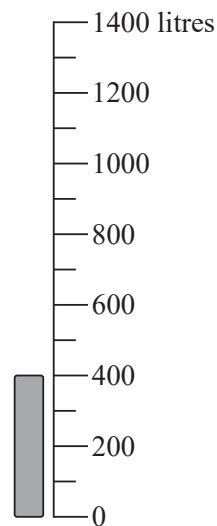
..... cm³

(Total for Question 10 is 2 marks)

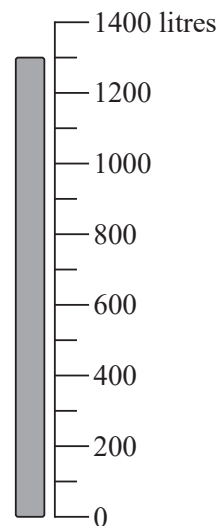


- 3 Joseph buys some heating oil.
He puts it in his oil tank.

The scales show the numbers of litres of oil in the tank immediately before and immediately after Joseph puts the oil in the tank.



before



after

The oil Joseph buys costs 0.40 euros per litre.

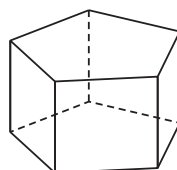
Work out the total cost of the oil that Joseph buys.

..... euros

(Total for Question 3 is 3 marks)



- 7 The diagram shows a 3-D shape.



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

.....
(1)

- (b) How many faces has the shape?

.....
(1)

- (c) How many edges has the shape?

.....
(1)

(Total for Question 7 is 3 marks)

- 8 Giovanni arrived at a railway station in Venice at 06 45

- (a) Write this time using the 12-hour clock.

.....
(1)

Giovanni caught a train from Venice to Rome.

The train left Venice at 07 25 and arrived in Rome at 11 10 the same day.

- (b) Work out how long the train journey took.

Give your answer in hours and minutes.

..... hours minutes
(2)

(Total for Question 8 is 3 marks)



12 Andros wants to make a playlist of four songs for a friend.

The total time taken by the four songs will be 20 minutes.

The time taken by each of the first three songs is shown below.

First song 6 minutes 16 seconds

Second song 4 minutes 28 seconds

Third song 4 minutes 35 seconds

Work out the time taken by the fourth song.

Give your answer in minutes and seconds.

minutes

seconds

(Total for Question 12 is 3 marks)



3 Mike buys 150 burger buns.

He buys the burger buns in packs of 6 burger buns.

Each pack of 6 burger buns costs £1.03

Work out how much Mike pays for the 150 burger buns.

£

(Total for Question 3 is 3 marks)

4 (a) Simplify $4m + 2m - m$

(1)

(b) Simplify $5p \times 7$

(1)

(c) Solve $8g = 40$

$g =$

(1)

(d) Solve $19 - k = 4$

$k =$

(1)

(Total for Question 4 is 4 marks)



2 Amelie is using ribbon to make decorations.

She has 7 metres of ribbon.

Each decoration needs 45 centimetres of ribbon.

What is the greatest number of decorations that Amelie can make?

(Total for Question 2 is 3 marks)



9 Pierre bought

2 cups of coffee at 2.10 euros a cup
2 cups of tea at 1.80 euros a cup
and 3 croissants

Pierre paid with a 20 euro note.
He received 8.75 euros change.

The cost of each croissant was the same.

Work out the cost of 1 croissant.

euros

(Total for Question 9 is 3 marks)



7 Bella buys

4 packets of sandwiches at £2.40 each packet
a bottle of water for £1.20
and 3 packets of crisps.

Bella pays with a £20 note.
She gets £5.75 change.

Each packet of crisps has the same price.

Work out the price of each packet of crisps.

£

(Total for Question 7 is 3 marks)



- 8 Sandeep has 1200 rupees to spend on pencils.
Each pencil costs 45 rupees.

Sandeep buys as many pencils as he can.

Work out how much change Sandeep should get.

..... rupees

(Total for Question 8 is 3 marks)

- 9 Anjali travels from Beijing to Shanghai by train.

The train leaves Beijing at 07 25

The train arrives in Shanghai at 13 15 the same day.

Work out how long the train takes to travel from Beijing to Shanghai.

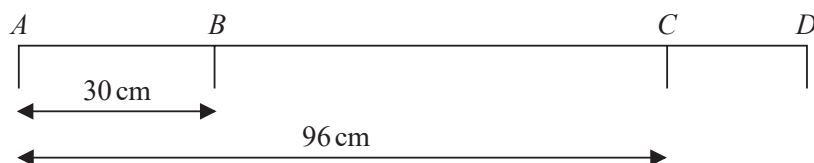
Give your answer in hours and minutes.

..... hours minutes

(Total for Question 9 is 2 marks)



5

Diagram **NOT**
accurately drawn

In the diagram, A , B , C and D are points on a straight line.

$$AB = 30 \text{ cm} \qquad AC = 96 \text{ cm} \qquad BC = 3CD$$

Work out the length of AD .

..... cm

(Total for Question 5 is 3 marks)

- 6 Diego left home on Tuesday at 07 50
He arrived home on the same Tuesday at 17 35

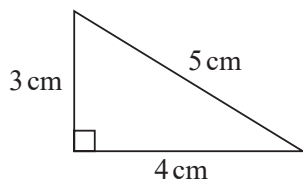
Work out the length of time that Diego was away from home on Tuesday.
Give your answer in hours and minutes.

..... hours minutes

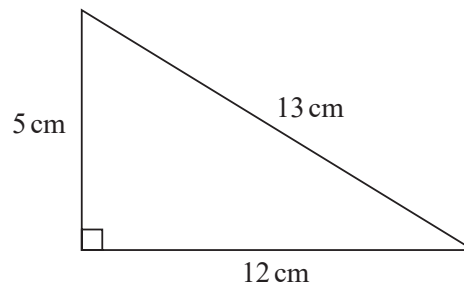
(Total for Question 6 is 2 marks)



Here are two triangles.



Triangle A



Triangle B

Diagram **NOT**
accurately drawn

- (d) Are triangle A and triangle B similar triangles?
You must give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 4 is 4 marks)

- 5 Matt buys a notebook and some pencils.

The notebook costs \$2.35

Each pencil costs \$0.74

Matt has a total of \$20 to spend on the notebook and the pencils.

He buys the greatest number of pencils that he can.

Work out how many pencils he buys.

.....

(Total for Question 5 is 3 marks)



- 6 Candles cost £3.05 each.
Theo has £30 to spend on candles.
He buys as many candles as he can for £30
Work out how much change Theo should get.

£

(Total for Question 6 is 3 marks)



8 Lucas is going on a country walk.

Lucas works out how long each part of his walk will take.
This information is shown in the following table.

	Time taken
Walk from home to Village A	20 minutes
Walk from Village A to Village B	35 minutes
Stop for lunch in Village B	1 hour 15 minutes
Walk from Village B to home	30 minutes

Lucas leaves home at 11 10

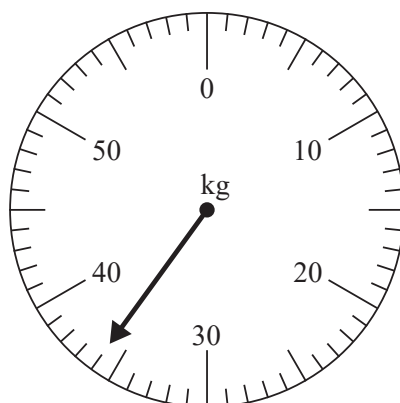
At what time will Lucas get home?

(Total for Question 8 is 3 marks)



3 Amir is going on holiday.

He weighs his suitcase on the weighing scales at the airport.
The reading on the scale gives the weight of Amir's suitcase.



An excess luggage charge has to be paid when the weight of a suitcase is greater than 25 kg.

This charge is 7.45 euros for each kilogram over the 25 kg limit.

Work out the excess luggage charge that Amir has to pay.

..... euros

(Total for Question 3 is 3 marks)



6 Nav makes bracelets using cord.

Nav has a 6 metre length of cord.

Each bracelet needs 17.5 cm of cord.

Work out the greatest number of bracelets that Nav can make.

.....
(Total for Question 6 is 3 marks)

7 (a) Simplify $10x + 4y + 3x - 6y$

.....
(2)

(b) Solve $2n + 5 = 16$

$n =$
(2)

(Total for Question 7 is 4 marks)



- 8 Paolo has a bag of flour.
The flour in the bag has a weight of 3 kilograms.

Paolo makes 8 pies using the flour in the bag.

3 of the pies each need 150 grams of the flour.

5 of the pies each need 180 grams of the flour.

Work out the weight of flour that remains in the bag when Paolo has made these pies.

Give your answer in grams.

..... grams

(Total for Question 8 is 3 marks)



- 6 Janine has 2 litres of orange squash.

She also has some empty cups.

When full, each cup holds 300 millilitres of orange squash.

Janine fills as many cups as possible.

How much orange squash does Janine have left after filling as many cups as possible?

State the units of your answer.

.....
(Total for Question 6 is 3 marks)

- 7 The diagram shows a rectangle and a square.

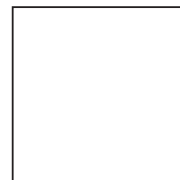
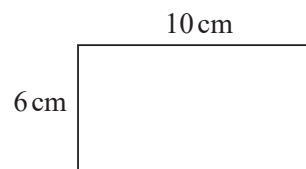


Diagram **NOT**
accurately drawn

The perimeter of the rectangle is equal to the perimeter of the square.

The area of the rectangle is less than the area of the square.

Work out by how much the area of the rectangle is less than the area of the square.

.....cm²

(Total for Question 7 is 4 marks)



- 9 In a shop, pens cost 34 cents each.
The shop has a special offer on the pens.

Special offer

Pay for 2 pens and get 1 free


 34 cents


 34 cents


 Free

Moritz wants 25 pens.

Work out how much Moritz has to pay for 25 pens.

.....cents

(Total for Question 9 is 3 marks)

- 6 The cost of a mobile phone in the UK is £350
The cost of an identical mobile phone in India is 28 938 rupees.

The exchange rate is £1 = 91 rupees.

The cost of the mobile phone in the UK is more than the cost of the mobile phone in India.

Work out how much more.

(Total for Question 6 is 3 marks)

- 7 Hassan is going to eat at a restaurant.
Here is the menu at the restaurant.

Starter	Main course
Fruit (F)	Burger (B)
Prawns (P)	Curry (C)
Soup (S)	Lasagne (L)
	Risotto (R)

Hassan is going to choose one starter and one main course from the menu.

List all the possible combinations that Hassan can choose.

(Total for Question 7 is 2 marks)



7 (a) Solve $5x = 30$

$$x = \dots\dots\dots (1)$$

(b) Solve $y - 7 = 12$

$$y = \dots\dots\dots (1)$$

(c) Simplify $h + h + h + h + h$

$$\dots\dots\dots (1)$$

(d) Simplify $5a + 7f - 2a + 4f$

$$\dots\dots\dots (2)$$

(Total for Question 7 is 5 marks)

- 8 Mairi has a 2 metre length of string.
She cuts from the string as many lengths of 35 centimetres as possible.

Work out the length of string that she has left.
Give your answer in centimetres.

$\dots\dots\dots$ cm

(Total for Question 8 is 3 marks)



12 Ingrid buys a bag in Sweden.

The price of the bag is 1342 Swedish Krona.

The price of an identical bag in Finland is 125 euros.

Using an exchange rate of

$$1 \text{ euro} = 11 \text{ Swedish Krona}$$

work out how much cheaper the bag is in Sweden than it is in Finland.

You must give the units of your answer.

(Total for Question 12 is 3 marks)

13 Hazel is buying a snack and a drink.

She can have a bar of chocolate (*B*) or some fruit (*F*) or a packet of crisps (*C*) as her snack.

She can have orange juice (*O*) or apple juice (*A*) or water (*W*) as her drink.

Write down all the possible combinations Hazel can have.

(Total for Question 13 is 2 marks)



- 5 Brigid recorded the distance she ran on each of three days.

The table shows her results.

Day	Distance
Monday	5950 m
Tuesday	14.5 km
Wednesday	9000 m

Brigid set herself the target of running a **total** of at least 30 km on these three days.

Show that Brigid did not achieve her target.

(Total for Question 5 is 3 marks)



7 Here are the first five terms of a number sequence.

1 7 13 19 25

(a) (i) Write down the next term of the sequence.

.....
(1)

(ii) Explain how you worked out your answer.

.....
(1)

(b) Explain why 188 cannot be a number in the sequence.

.....
(1)

(Total for Question 7 is 3 marks)

8 Jordan buys 256 notebooks.

He buys the notebooks in packs of 8 notebooks.

Each pack of 8 notebooks costs £2.48

Work out how much the 256 notebooks cost Jordan.

£.....

(Total for Question 8 is 3 marks)



- 5 Zoya buys a book and some pencils.

The book costs £6.90

Each pencil costs £0.55

Zoya has a total of £15 to spend on the book and the pencils.

She buys as many pencils as she can.

Work out how many pencils she buys.

.....
(Total for Question 5 is 3 marks)

- 6 (a) Write down all the factors of 10

.....
(1)

- (b) Find the lowest common multiple (LCM) of 18 and 60

.....
(2)

(Total for Question 6 is 3 marks)



- 6 (a) Write 5 15 pm using the 24-hour clock.

.....
(1)

Roberta goes out for a walk.

She leaves home at 16 35

She arrives back home at 20 15 on the same day.

- (b) Work out for how much time Roberta is out for her walk.

..... hours minutes
(2)

(Total for Question 6 is 3 marks)

- 7 (a) Simplify $c \times c \times c \times c \times c$

.....
(1)

- (b) Solve $5 + x = 12$

$x =$
(1)

- (c) Solve $\frac{y}{6} = 3$

$y =$
(1)

- (d) Expand $5(2 + 3h)$

.....
(1)

- (e) Factorise $g^2 + 7g$

.....
(1)

(Total for Question 7 is 5 marks)



- 4 (a) Write 4.15 pm as a time using the 24-hour clock.

.....
(1)

On Thursday, Belina drives to Theo's house.

She leaves home at 09 15

She arrives at Theo's house at 14 40

- (b) Work out how long the journey takes.
Give your answer in hours and minutes.

..... hours minutes
(2)

(Total for Question 4 is 3 marks)



14

1 dollar = 0.85 euros
1 dollar = 6.45 yuan

(a) Change 720 dollars to euros.

..... euros
(1)

(b) Change 2580 yuan to euros.

..... euros
(2)

(Total for Question 14 is 3 marks)



- 4 Barney went for 4 walks on Tuesday.

The lengths of the walks were

800 metres
2 kilometres
1.7 kilometres
 x metres

The total length of the 4 walks was 6250 metres.

Work out the value of x

$x =$

(Total for Question 4 is 3 marks)

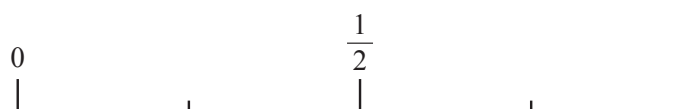
- 5 There are 8 counters in a bag.

6 of these counters are orange.

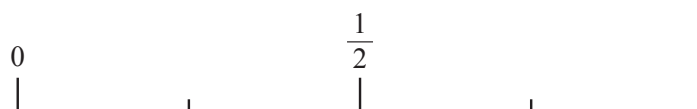
The rest of the counters are purple.

Delilah takes at random a counter from the bag.

- (i) On the probability scale below, mark with a cross (×) the probability that the counter is orange.



- (ii) On the probability scale below, mark with a cross (×) the probability that the counter is yellow.



(Total for Question 5 is 2 marks)



12 Shane buys a clock in Australia.

The clock costs 232 Australian dollars.

In India, an identical clock costs 12 420 Indian rupees.

The exchange rate is 1 Australian dollar = 54 Indian rupees

The clock costs more in Australia than in India.

Work out how much more.

You must give the units of your answer.

.....
(Total for Question 12 is 3 marks)

13 Tom wants to knit an item for a baby.

He can knit a jumper (*J*) or a blanket (*B*) or a hat (*H*) or some socks (*S*)

He can knit using white wool (*W*) or using yellow wool (*Y*)

Tom chooses one item to knit and chooses one colour of wool.

Write down all the possible combinations for the item that Tom could knit.

.....
.....
.....
(Total for Question 13 is 2 marks)



- 5 Mina has 5 litres of water in a bottle and some empty cups.
She fills as many cups as possible with water from the bottle.
She fills each cup with 280 millilitres of water.

Work out how many cups Mina completely fills.

(Total for Question 5 is 3 marks)



- 8 Barsha buys some nails and some bolts.

Each box of nails costs £2.60

Each pack of bolts costs £3.94

Barsha buys 5 boxes of nails and 4 packs of bolts.

He pays with a £50 note.

Work out how much change he should get.

£.....

(Total for Question 8 is 3 marks)

- 9 (a) Simplify $c \times c \times c$

.....
(1)

- (b) Simplify $12d \times 3e$

.....
(1)

- (c) Solve $\frac{k}{4} = 7$

$k =$
(1)



- 4 (a) Change 5000 millilitres into litres.

..... litres
(1)

- (b) Find the difference between a length of 3 metres and a length of 85 centimetres.
Give your answer in centimetres.

..... centimetres
(2)

(Total for Question 4 is 3 marks)

- 5 (a) Simplify $a + a + a + a + a$

.....
(1)

- (b) Simplify $b \times c \times 7$

.....
(1)

- (c) Solve $5d = 40$

$d =$
(1)

(Total for Question 5 is 3 marks)



- 9 Kamal sells 240 ice creams for a total of \$640

$\frac{1}{3}$ of the ice creams he sells are large.

The cost of each large ice cream he sells is \$3.80

All the other ice creams he sells are small.

He sells each small ice cream for the same cost.

Work out the cost of each small ice cream.

\$.....

(Total for Question 9 is 4 marks)

- 10 (a) Write the ratio 32 : 80 in its simplest form.

.....
(2)

There are only red counters and blue counters in a bag.

In the bag

the number of red counters : the number of blue counters = 5 : 7

- (b) What fraction of the counters in the bag are red?

.....
(1)

(Total for Question 10 is 3 marks)



12 Sam takes an English exam.

There are two papers in the exam.

Each paper has a maximum mark of 80

To pass the exam, Sam needs to get at least 60% of the total marks.

Sam gets 55% of the 80 marks in paper 1

Work out the least number of marks that Sam must get in paper 2 to pass the English exam.

.....
(Total for Question 12 is 4 marks)



4 Mike is going to buy

1 hammer at £6

2 boxes of nails at £3.50 for each box

4 pieces of wood at £4.20 for each piece

some pairs of gloves at £1.80 for each pair

Mike has £40 to spend in total on these items.

He wants to buy as many pairs of gloves as he can.

Work out the greatest number of pairs of gloves that Mike can buy.

(Total for Question 4 is 4 marks)



11

 $1 \text{ euro} = 9.3 \text{ Hong Kong dollars (HKD)}$ $1 \text{ euro} = 4.4 \text{ dirham (AED)}$

(a) Change 400 euros to Hong Kong dollars.

..... HKD
(1)

(b) Change 418 dirham to euros.

..... euros
(1)

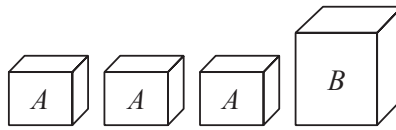
(c) Change 651 Hong Kong dollars to dirham.

..... AED
(2)

(Total for Question 11 is 4 marks)



7

Diagram **NOT**
accurately drawn

The diagram shows four parcels.

The total weight of the four parcels is 8.3 kg.

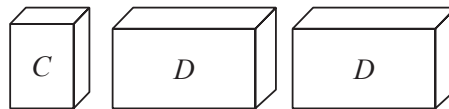
The weight of the parcel labelled *B* is 3.2 kg.

Each of the three parcels labelled *A* have the same weight.

(a) Work out the weight of each of the parcels labelled *A*.

..... kg
(2)

Here are another three parcels.

Diagram **NOT**
accurately drawn

The total weight of the three parcels is 9.45 kg.

Each of the two parcels labelled *D* have the same weight.

The weight of each parcel labelled *D* is $3 \times$ the weight of the parcel labelled *C*.

(b) Work out the weight of the parcel labelled *C*.

..... kg
(2)

(Total for Question 7 is 4 marks)



4 Iwan is going to buy the following items

- 1 plant pot at £8
- 3 bags of soil at £4.50 for each bag
- some packets of seeds at £1.10 for each packet.

Iwan has a total of £30 to spend on these items.
He buys as many packets of seeds as he can.

Work out how much change Iwan should receive.

£.....

(Total for Question 4 is 4 marks)



12 Elvira and Anja go on holiday to Sweden and to Finland.

In Sweden, Elvira bought some trainers for 438 Swedish krona.

In Finland, Anja bought the same type of trainers for 44.39 euros.

1 Swedish krona = 0.12 dollars

1 dollar = 0.92 euros

Work out the difference in the cost of the trainers bought by Elvira and the trainers bought by Anja.

Give your answer in dollars.

..... dollars

(Total for Question 12 is 4 marks)



- 8 In Berlin, a watch costs 120 euros.
In Dubai, the same model of watch costs 600 dirhams.

The currency exchange rates are

Exchange rates

$$\begin{aligned}\text{£1} &= 1.16 \text{ euros} \\ 1 \text{ dirham} &= 0.24 \text{ euros}\end{aligned}$$

Calculate the difference between the cost of the watch in Berlin and the cost of the same model of watch in Dubai.

Give your answer in pounds (£) correct to 2 decimal places.

£.....

(Total for Question 8 is 4 marks)



- 5 James is on holiday in Canada.
The exchange rate is £1 = 1.75 Canadian dollars.

(a) Change £800 into Canadian dollars.

.....Canadian dollars
(2)

James buys a watch in Canada.

The price of the watch is 98 Canadian dollars.

In England the price of an identical watch is £60

- (b) Work out the difference in the prices of the two watches.
Give your answer in pounds (£)

£.....
(2)

(Total for Question 5 is 4 marks)



- 4 (a) Change 5.48 metres into centimetres.

..... cm
(1)

- (b) Change 4600 millilitres into litres.

..... litres
(1)

Here is an isosceles triangle ABC .

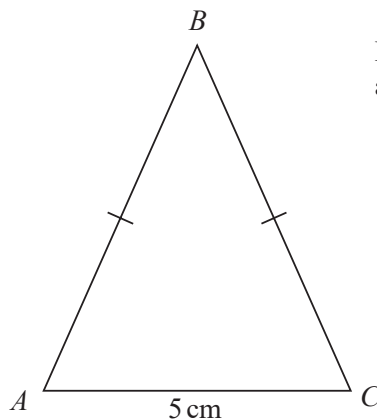


Diagram **NOT**
accurately drawn

$$AC = 5 \text{ cm.}$$

The perimeter of the triangle is 32 cm.

- (c) Work out the length of AB .

..... cm
(2)

(Total for Question 4 is 4 marks)



- 7 Carmel is working out the cost of using her mobile phone in March.

Here is the information that she uses.

Calls	465 minutes	(first 400 minutes free)
Texts	1740 messages	(first 1500 messages free)

Costs

Monthly charge	\$20.75
Calls	\$0.10 per minute
Texts	\$0.05 each message

Work out the total cost that Carmel has to pay for using her mobile phone in March.

\$.....

(Total for Question 7 is 4 marks)



5 Angelina buys

3 packets of seeds at \$2.45 each packet

2 bags of compost at \$6.20 each bag

and 4 plant pots

Each plant pot costs the same amount of money.

Angelina paid a total of \$34.35 for the seeds, compost and plant pots.

Work out the cost of each plant pot.

\$.....

(Total for Question 5 is 4 marks)



- 7 Sandeep buys some flowers.
He has 5000 rupees to spend.

He buys 6 carnations at 220 rupees each.
He also buys some roses at 295 rupees each.

Sandeep should receive 140 rupees in change from his 5000 rupees.

Work out how many roses Sandeep buys.

.....
(Total for Question 7 is 4 marks)



10 It takes a machine 8 seconds to produce a bolt.

Each day, the machine starts producing bolts at 09 30

The machine produces bolts continuously every 8 seconds until it stops at 16 10 on the same day.

Work out how many bolts the machine produces each day.

.....
(Total for Question 10 is 4 marks)



- 2 Luca has 5 kg of chopped tomatoes.
He also has some empty tins.

When full, each tin holds 350 g of chopped tomatoes.

Luca fills as many tins as possible with the chopped tomatoes.

Work out the weight of the chopped tomatoes remaining after Luca has filled as many tins as possible.

Give the units of your answer.

(Total for Question 2 is 4 marks)



- 6 Sandeep sells 600 tickets for an event.
He receives a total of \$7200 from selling the tickets.

$\frac{1}{4}$ of the tickets sold are child tickets.

The rest of the tickets sold are adult tickets.

The cost of an adult ticket is \$13.60

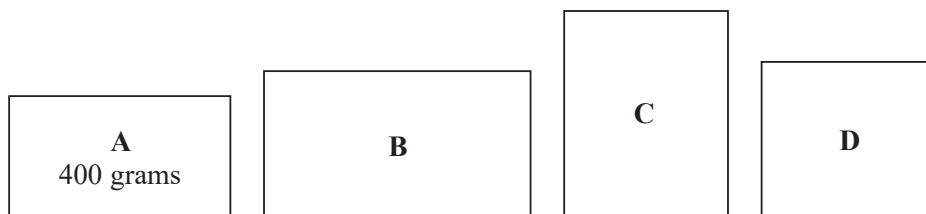
Work out the cost of a child ticket.

\$

(Total for Question 6 is 4 marks)



5 Pat has 4 parcels **A**, **B**, **C** and **D**



The weight of parcel **A** is 400 grams.

The weight of parcel **B** is 350 grams more than the weight of parcel **A**

The weight of parcel **C** is twice the weight of parcel **A**

The total weight of the 4 parcels is 2.5 kilograms.

Work out the weight, in grams, of parcel **D**

..... grams

(Total for Question 5 is 4 marks)



- 9 (a) Write the time 8 30pm using the 24-hour clock.

.....
(1)

Ella started watching television at 10 50 am.

Ella watched

- a comedy programme lasting 45 minutes
- a sports programme lasting 1 hour 10 minutes
- a history programme

There were no breaks and no advertisements between the programmes.

Ella finished watching television at 2 20 pm.

- (b) How long did the history programme last?
Give your answer in minutes.

..... minutes
(3)

(Total for Question 9 is 4 marks)



10 Hermann changed £500 into euros.
The exchange rate was £1 = 1.18 euros.

(a) Work out how much money, in euros, Hermann received.

..... euros
(2)

Anita changed \$350 into pounds (£)
The exchange rate was £1 = \$1.40

(b) Work out how much money, in pounds (£), Anita received.

£.....
(2)

(Total for Question 10 is 4 marks)



11 Pablo buys some tickets to go to the theatre.

3 of the tickets are for adults.

The remaining tickets are for children.

Each adult ticket costs 12 euros.

The children's tickets each cost 30% less than an adult ticket.

The total amount of money that Pablo pays for all the tickets is 94.80 euros.

Find the number of children's tickets Pablo buys.

(Total for Question 11 is 4 marks)



- 6 Niran is organising a baking competition and needs to buy 9.25 kilograms of flour.

Flour is sold in bags that each contain 750 grams of flour.

Each of these bags costs 58 Baht.

Niran can only buy whole bags of flour.

Niran buys the least number of bags of flour that he needs.

Work out the cost of the flour that he buys.

..... Baht

(Total for Question 6 is 4 marks)



10 Adriana makes some cupcakes.

She sells each cupcake for £2.20

Mike buys 6 of these cupcakes.

He pays with a £20 note.

(a) Work out how much change Mike should receive.

£.....
(2)

Greta sells balloons.

She sells each balloon for £0.85

Stefan has £50 to spend on balloons.

(b) Work out the greatest number of balloons he can buy.

.....
(2)

(Total for Question 10 is 4 marks)



7 Gerhard is travelling from Zurich to Munich.

The table shows the exchange rate in each city.

Zurich	Munich
1 Swiss franc = 0.90 euros	1 euro = 1.08 Swiss francs

Gerhard wants to change 1620 Swiss francs to euros.

He would receive more euros if he changes his Swiss francs in Munich than he would receive if he changes his Swiss francs in Zurich.

How many more?

..... euros

(Total for Question 7 is 4 marks)



- 6 Akbar goes to a restaurant with his friends.
They have a total of 1000 dirhams to spend on food.

They order

2 dishes of chicken makhani at 145.50 dirhams each
3 dishes of vegetable korma at 110 dirhams each
some naans at 30 dirhams each

They order as many naans as they can.

They pay with a 1000 dirham note.

Work out how much change they should receive.

..... dirhams

(Total for Question 6 is 4 marks)



- 7 (a) Write 4 30 pm as a time in the 24-hour clock.

.....
(1)

Here is part of a bus timetable from Beetown to Pilton.

Beetown	08 45
Corthill	09 50
Pilton	10 36

The bus should take more time to get from Beetown to Corthill than from Corthill to Pilton.

- (b) How much more time?
Give your answer in minutes.

..... minutes
(3)

(Total for Question 7 is 4 marks)



7 Harold works in a factory.

His normal hourly rate of pay is £14

His overtime hourly rate of pay is £21

Harold is paid the normal hourly rate of pay for 35 hours in one week.

His total pay for this week is £679

Work out the number of hours of overtime he works in this week.

.....
(Total for Question 7 is 4 marks)



8 Marie buys

3 birthday cards at \$1.80 each

4 sheets of wrapping paper at \$1.20 a sheet

2 identical rolls of sticky tape

The total cost is \$17.10

Work out the cost of one roll of sticky tape.

\$.....

(Total for Question 8 is 4 marks)



- 8 Bargain Crafts and Art's Store each have a special offer on tins of crayons.

Bargain Crafts

Crayons \$4.20 per tin

Special offer

Pay for 2 tins get 1 tin free

Art's Store

Pack of 5 tins of crayons for \$18

Special offer

25% off each pack of 5 tins

Heidi buys 30 tins of crayons from Bargain Crafts using the special offer.

Amir buys 30 tins of crayons from Art's Store using the special offer.

Work out the difference between the amount that Heidi pays and the amount that Amir pays.

\$.....

(Total for Question 8 is 4 marks)

- 9 A circle has a radius of 9 cm.

Calculate the area of the circle.

Give your answer correct to 3 significant figures.

..... cm²

(Total for Question 9 is 2 marks)



6 Pierre used 2358 units of water last year.

Each unit of water cost 0.28 euros.

Pierre has already paid for some of the water he used.

He paid 42 euros each month last year.

Work out how much more Pierre has to pay for the water he used last year.

..... euros

(Total for Question 6 is 4 marks)



- 7 One weekend, Marion went on four walks.

Here are the distances Marion walked

3.5 kilometres
950 metres
1.8 kilometres
1200 metres

The same weekend, Talha walked a total of 8 kilometres.

Talha walked a greater distance than Marion walked.

How much greater?

Give your answer in metres.

..... metres

(Total for Question 7 is 4 marks)

- 8 (a) Simplify $7g + 3h + 4g - 5h$

.....
(2)

- (b) Simplify $7a \times 4m$

.....
(1)



- 12 Seb went into a restaurant at 18 15
He left the restaurant at 21 40

- (a) Work out the time that Seb spent in the restaurant.
Give your answer in hours and minutes.

..... hours minutes
(2)

On Friday, the restaurant sold 120 meals.
48 of these meals were vegetarian meals.

- (b) What percentage of the meals sold on Friday were vegetarian meals?

..... %
(2)

(Total for Question 12 is 4 marks)

- 13 Show that $\frac{3}{7} + \frac{1}{4} = \frac{19}{28}$

(Total for Question 13 is 2 marks)



- 9 Roy has 2 litres of orange juice in a jug and some empty cups.
He pours orange juice from the jug to completely fill as many cups as possible.
He pours 180 millilitres of orange juice into each cup.

Work out how much orange juice Roy has left in the jug after he has completely filled
as many cups as possible.
Give your answer in millilitres.

..... millilitres

(Total for Question 9 is 4 marks)



- 6 Here is a number machine.



- (a) Find the output when the input is 10

.....
(1)

- (b) Find the output when the input is -2

.....
(1)

(Total for Question 6 is 2 marks)

- 7 Raymond sells 80 burgers for a total of £176

$\frac{1}{5}$ of the burgers are large.

Each large burger costs £3

The remaining burgers are small.

Work out the cost of one small burger.

£.....

(Total for Question 7 is 4 marks)



- 4 (a) Change 650 centimetres into metres.

..... metres
(1)

- (b) Change 8 litres into millilitres.

..... millilitres
(1)

Memona has a 6 kg sack of rice and some empty bags.
She fills each bag with 475 grams of rice from the sack.

- (c) How many bags can Memona completely fill with rice?

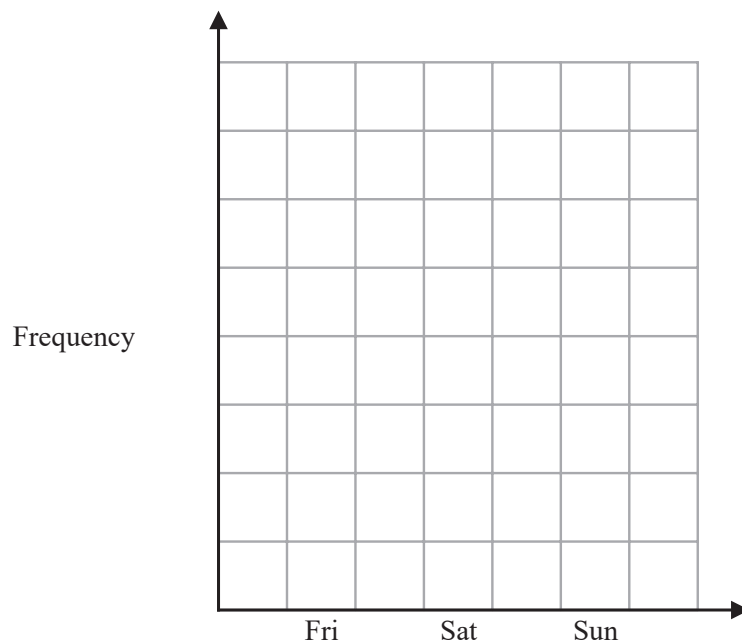
.....
(3)

(Total for Question 4 is 5 marks)



On Friday, Sophie received 14 emails, on Saturday she received 11 emails and on Sunday she received 6 emails.

- (e) Draw a bar chart to show the number of emails Sophie received on each of Friday, Saturday and Sunday.
Complete the frequency axis.



(2)

(Total for Question 2 is 8 marks)

- 3 (a) Complete the following estimates by writing a suitable metric unit on each of the dotted lines.

(i) The distance from Paris to Berlin is about 1000

(ii) A bucket holds about 5 of water.

(iii) The area of the screen of a mobile phone is about 90

(3)

- (b) Write down an estimate for the height of a bedroom door in a house.
Use a suitable metric unit.

.....



(2)

(Total for Question 3 is 5 marks)

- 5 The table gives information about the costs of sending parcels of different weights.

Weight (w kg)	Cost of sending a parcel
$0 < w \leq 1$	£6.00
$1 < w \leq 2$	£9.02
$2 < w \leq 5$	£15.85
$5 < w \leq 10$	£21.90

Peony has one parcel of weight 1.3 kg and another parcel of weight 8 kg to send to two different places.

- (a) Work out the total cost of sending these two parcels.

£.....
(2)

Gryffyn sends 3 parcels each to a different place.

One of the parcels has a weight of 1.5 kg and another of the parcels has a weight of 2.8 kg

The total cost of sending the 3 parcels is £33.89

- (b) Work out the greatest possible weight of the third parcel.

..... kg
(3)

(Total for Question 5 is 5 marks)



6 Sabbir arrived at Dhaka train station at 9 30 pm.

(a) Write this time using the 24-hour clock.

(1)

A train left Dhaka train station at 10 30 pm one day.

The train arrived at Chittagong train station at 7 50 am the next day.

(b) Work out the time taken by this train.

Give your answer in hours and minutes.

hours

minutes

(2)

A different train travelled from Dhaka to Darshana.

The train took 5 hours and 30 minutes.

The train travelled a distance of 327 kilometres.

(c) Work out the average speed of the train.

Give your answer in kilometres per hour correct to the nearest whole number.

km/h

(3)

(Total for Question 6 is 6 marks)



Adam plays the game and Carmen plays the game.

Adam gets a prize if his score is 5 or less.

Carmen gets a prize if her score is a multiple of 6

Carmen says the game is unfair because Adam is more likely to get a prize.

(c) Is the game unfair?

You must give a reason for your answer.

(2)

(Total for Question 7 is 6 marks)

8 Nina buys 8 pencils and 13 identical rulers.

Each pencil costs \$0.58

The total cost is \$23.62

(a) Work out the cost of each ruler.

\$
(3)

Bjorn has \$15 to spend on pens.

Each pen costs \$0.62

He buys as many pens as he can.

(b) Work out how much change Bjorn should get.

\$
(3)

(Total for Question 8 is 6 marks)



3 (a) Complete the following sentences by writing a sensible metric unit on each of the dotted lines.

(i) The distance from Cairo to Nairobi is 5211

(ii) The weight of an egg is 20

(iii) The area of the floor of a classroom is 260

(3)

Cara has a bottle of juice.

There is 1 litre of juice in the bottle.

Cara makes some drinks.

She uses exactly 30 millilitres of this juice to make each drink.

Cara makes as many drinks as possible.

(b) How many drinks does Cara make?

.....
(3)

(Total for Question 3 is 6 marks)



- 3 (a) Change 6 metres into centimetres.

..... centimetres
(1)

- (b) Change 4500 grams into kilograms.

..... kilograms
(1)

Lauren has 3 litres of fruit juice.

She is going to use the fruit juice to make some drinks for a party.

Each cup of drink will contain 225 millilitres of fruit juice.

Lauren is going to make as many cups of drink as possible.

- (c) Work out how much fruit juice Lauren has left when she has made as many cups of drink as possible.

Give your answer in millilitres.

..... millilitres
(4)

(Total for Question 3 is 6 marks)



21 Shane bought a car.

The amount Shane paid for the car was \$32 000

Theresa also bought a car.

To pay for this car, Theresa paid a deposit of \$18 000 together with 14 monthly payments of \$1160

Theresa paid more for her car than Shane paid for his car.

(a) Work out how much more Theresa paid as a percentage of the amount Shane paid.

..... %
(4)

Kylie bought a van.

After 1 year, the value of the van was \$39 865

During this year, the value of the van decreased by 15%

(b) Work out the value of the van when Kylie bought it.

\$.....
(3)

(Total for Question 21 is 7 marks)



7 Here are five times, in a single day, using the 24-hour clock.

A	B	C	D	E
11 53	15 20	08 20	18 12	16 45

(a) Write down the letter of the time nearest to 6 pm

.....
(1)

(b) Work out the difference, in hours and minutes, between time A and time E.

..... hours minutes
(2)

Francesco uses the rule below to find the time, in minutes, to cook a chicken in his oven.

Number of minutes to cook a chicken
Multiply the weight of the chicken, in kg, by 40 and then add 15

The clock on Francesco's oven shows time B.

Francesco starts cooking a chicken at this time.

He stops cooking the chicken when the clock on his oven shows time E.

(c) Work out the weight of the chicken.

..... kg
(3)

(d) Use Francesco's rule to write down a formula for the time, T minutes, to cook a chicken of weight k kilograms.

.....
(2)

(Total for Question 7 is 8 marks)



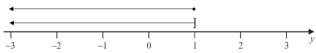
MARK SCHEMES

official mark schemes, in the same order as the questions



18	(a)		33.75	1	B1	oe eg 33.750
	(b)		33.85	1	B1	allow 33.849 or 33.849 ^r or "33.8499..." do NOT allow 33.879 without indication of recurring "9"
Total 2 marks						
19		$\frac{70 \times 40}{0.02}$ or $\frac{68 \times 40}{0.02}$ or $\frac{70 \times 43}{0.02}$ or $\frac{68 \times 43}{0.02}$		2	M1	for a correct expression using a suitable approximation. 0.02 is the only acceptable denominator.
		$\frac{70 \times 40}{0.02} = 140\,000$ or $\frac{68 \times 40}{0.02} = \frac{2720}{0.02} = 136\,000$ or $\frac{70 \times 43}{0.02} = \frac{3010}{0.02} = 150\,500$ or $\frac{68 \times 43}{0.02} = \frac{2924}{0.02} = 146\,200$	Correct figures		A1	If student says 'no' then do not award the A mark Intermediate step required unless rounded to 1sf
Total 2 marks						

14			2	M1 for 2.72(02...) or 26.01 or 8.67 or 11.4 or 11.39
		11.390(2941)		A1
Total 2 marks				

Q	Working	Answer	Mark	Notes
15 (a)		-2, -1, 0, 1, 2	2	B2 for -2, -1, 0, 1, 2 with no additions or repeats (B1 for 4 of -2, -1, 0, 1, 2 with no additions or repeats or for 6 values with no more than one incorrect value e.g. all of -2, -1, 0, 1, 2, 3 or for 5 values with one error)
(b)		Closed circle at $x = 1$ and a line with an arrow to the left	1	B1 for a closed circle at $x = 1$ and a line with an arrow of any length to the left Allow] for a closed circle Allow a line without an arrow if it reaches to at least -3
Total 3 marks				

14	(a)	$2.6 \times 40 + 30$ oe		2	M1
			134		A1 allow 2 h 14 mins
	(b)	$2 \times 60 + 40 (= 160)$ oe		3	M1 convert 2 hours 40 minutes to minutes
		$((\text{"160"} - 30) \div 40$ or $\text{"130"} \div 40$			M1 for a complete method
			3.25		A1 oe eg $3\frac{1}{4}$ or $\frac{13}{4}$ (Note: may see use of their part (a))
					Total 5 marks

15		eg $10.5 \div (5 - 2) (= 3.5(0))$ or $\frac{5}{7} - \frac{2}{7} (= \frac{3}{7})$ or $10.5 \times \frac{5}{5-2} (= 17.5)$ or $10.5 \times \frac{2}{5-2} (= 7)$		3	M1 for finding the value of one share or the difference as a fraction or Bella's share or Millie's share
		eg $"3.5" \times 7$ or $10.5 \div "3"$ or $"17.5" + "7"$			M1 for a complete method
			24.5(0)		A1 oe eg $\frac{49}{2}$
					SCB1 for an answer of 3 and/or 7.5 oe
					Total 3 marks

16	$\frac{62.3...}{6.07...}$		2	M1 for 62.3(2) or 6.07(646...) or 10.2 or 10.3 or 10.25 or 10.26 or 10.255 or 10.256
		10.2559(6871)		A1
				Total 2 marks



14	(a)	Rotation, rotate, rotated (not turn)	rotation 180° about (0, 0) or <i>O</i>	2	B1 oe with no mention of reflection, translation, enlargement, move, flip etc B1 oe with no mention of a line, column vector or SF (SCB1 for 'half turn about (0, 0) or <i>O</i> ' with no contradictory statements) Alternative: B2 for enlargement with centre <i>O</i> and SF -1 (B1 for enlargement with no mention of other transformation, B1 for centre <i>O</i> and SF -1)
	(b)	(-4, 1)(-6, 1)(-6, 3)(-5, 3)(-5, 4)(-4, 4)	A correct shape	2	B2 (B1 for a 'correct' shape reflected in any vertical line or a correct reflection in the line $y = -1$ or reflection of shape B in the line $x = -1$)
					Total 4 marks
15		$\frac{579}{490}$ or 1.18163.....		2	M1 or 70.1, 70.07, 70.071, 70.072, 70.0716
			70.07163(265.....)		A1 at least 5 dp truncated or rounded
					Total 2 marks

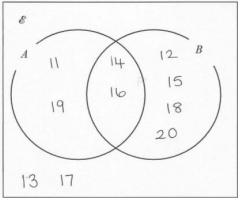


Question	Working	Answer	Mark	Notes	
13	eg $0.1 \times 150 (= 15)$		4	M1	M2 for $0.9 \times 150 (= 135)$
	$1800 + 360 (= 2160)$ or eg $135g - 1800 = 360$ or $150 - "15" (= 135)$			M1	
	"2160" $\div$ (150 – "15") or "2160" $\div$ "135"			M1	
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	16		A1	
Total 4 marks					
Question	Working	Answer	Mark	Notes	
14			2	M1	For 35.74 or 3.80788.... or for the correct answer but rounded or truncated to 3, 4 or 5 significant figures (9.38, 9.39, 9.385, 9.386, 9.3857, 9.3858)
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	9.38578(...)		A1	Minimum 9.38578
Total 2 marks					

14			2	M1 for 18.4(867...) or 2.65(88) or 6.95 or 6.953 or 6.9530
	Correct answer scores full marks (unless from obvious incorrect working)	6.95304(3483...)		A1
				Total 2 marks

15	eg $35 \div 5 (= 7)$ or $27 \div 5 (= 5...)$ or $40 \div 5 (= 8)$ or $5 \times 5 \times 5 (= 125)$ or $27 \times 35 \times 40 (= 37800)$ or $25 \times 35 \times 40 (= 35000)$		4	M1 for finding the number of boxes that fit along a side of the crate or the volume of the box or the volume taken up by the boxes
	eg $7 \times 5 \times 8 (= 280)$ and $5 \times 5 \times 5 (= 125)$ or $27 - 5 \times 5 (= 2)$ or $27 \times 35 \times 40 (= 37800)$ and $25 \times 35 \times 40 (= 35000)$ or $(37800 \div 125) - (7 \times 5 \times 8) (= 22.4)$			M1 for finding the total number of boxes that will fit in the crate and the volume of the box or the number of cm remaining without a box or the volume of the crate and the total volume of the boxes that fit or the volume of space left at the top in terms of number of boxes
	$37800 - 280 \times 125$ oe eg $37800 - 35000$ or $2 \times 35 \times 40$ or 22.4×125			M1 for a fully correct method to find the volume of space left
	Correct answer scores full marks (unless from obvious incorrect working)	2800		A1 cao
				Total 4 marks



15			3	B3 For all 4 parts of Venn diagram correct (B2 for 2 or 3 parts correct, B1 for 1 part correct)
Total 3 marks				
16	1.63(17...) or 1.43(17...) or $\frac{5258}{27425}$ or 0.19, 0.191, 0.192, 0.1917		2	M1 A start to the calculation or an answer given as a fraction or a prematurely rounded answer
	Correct answer scores full marks (unless from obvious incorrect working)	0.19172(28806)		A1 at least 5 dp
Total 2 marks				

16	30 or 50 <i>Working required</i>	1500	2	M1 A1 cao dep on M1 1500 must come from correct figures of 30 and 50
				Total 2 marks

17		Triangle with vertices (3, -1) (5, -1) (3, -4)	2	B2 for a correct reflection (B1 for a correct reflection in a vertical line or for 2 points of the correct triangle or for a correct reflection in $y = 1$) Overlay is available
				Total 2 marks

Question	Working	Answer	Mark	Notes
13	7.79 or 11.709... or 0.67 or 0.665 or 0.6652		2	M1
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	0.66524(4...)		A1 At least 5 sf (0.665 244 513 4 calculator value)
				Total 2 marks

Question	Working	Answer	Mark	Notes
14	$125 \times 9 (= 1125)$ or $125 \times 5 (= 625)$ or $9 \times 5 (= 45)$ or $125 \times 9 \times 5 (= 5625)$ or $0.24 \times 125 (= 30)$ or $0.24 \times 9 (= 2.16)$ or $0.24 \times 5 (= 1.2)$		3	M1
	$0.24 \times (125 \times 9 \times 5)$ oe or $0.24 \times "5625"$ oe or "30" $\times 9 \times 5$ oe or $125 \times "2.16" \times 5$ oe or $125 \times 9 \times "1.2"$ oe			M1 for a complete method
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	1350		A1 SCB2 for 4275
				Total 3 marks

Question	Working	Answer	Mark	Notes
15	$2 \times \pi \times 16$ or $\pi \times "32"$		2	M1 Allow 3.14... or $\frac{22}{7}$ for π
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	101		A1 100 to 101 NB 101 from $\pi \times 16^2 (= 32\pi)$ scores M0A0
				Total 2 marks

Question	Working	Answer	Mark	Notes
11 (a)	$4.3333(3\dots) + 0.37894(7\dots)$ or $\frac{13}{3} + \frac{36}{95}$		2	M1 Evaluate either fraction correctly as a decimal to at least 5SF (rounded or truncated) or as a simplified fraction or an answer of 4.71(2)
		4.7122(80702)		A1 Correct to at least 5SF (rounded or truncated).
(b)		4.71	1	B1 ft if at least 4SF given in (a) (not 4.71)
Total 3 marks				
12 (a)	$0.5 \times 2 \times 3$		3	M1 Accept even if added to another area
		3 cm ²		A1 for 3 B1 for units
(b)		alternate angles	1	B1 'alternate' or 'alternating' or equivalent statement
(c)		y=4	1	B1
Total 5 marks				

12	(a)		49.876(41697...)	2	B2 If not B2 then award B1 for 41.6(6...) or $\frac{125}{3}$ or $\frac{7.5}{0.18}$ or 8.2(0....)
	(b)		50	1	B1 ft from (a) provided 2 or more sig figs
					Total 3 marks

13		360 ÷ 24 $(n - 2)180 = (180 - 24)n$		2	M1 A fully correct method to find the number of sides of the polygon or correct use of formula with use of 24
			15		A1
					Total 2 marks

Question		Working	Answer	Mark	Notes	
5	(i)		81	1	B1	
	(ii)		10	1	B1	
	(v)		23	1	B1	
						Total 3 marks
6	(a)	$\frac{40.194}{8.76}$	4.5883(56164)	2	M1 A1	40.194 or 8.76 seen or implied by 4.588 At least 4 digits reqd after decimal point.
	(b)		4.6	1	B1ft	For 4.6 or ft from (a) if at least 3 s.f.
						Total 3 marks
7	(a)		(2, 3)	1	B1	
	(b)		D	1	B1	
	(c)	$(-2 + 4) \div 2$ or $(3 + 1) \div 2$	(1, 2)	2	M1 A1	
						Total 4 marks

International GCSE Maths				
Apart from questions 20(a) (where the mark scheme states otherwise) the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method				
Q	Working	Answer	Mark	Notes
1 (a)		Gabon	1	B1
(b)		11 100	1	B1 accept –11 100
(c)		248 000	1	B1
				Total 3 marks

2 (a)		100	1	B1
(b)		1 $\frac{3}{4}$ pictures	1	B1
(c)	$2\frac{1}{2} + 3\frac{1}{4} + 5 + 4\frac{1}{4} + 1\frac{3}{4} (= 16\frac{3}{4})$ oe or $2\frac{1}{2} \times 20 + 3\frac{1}{4} \times 20 + 5 \times 20 + 4\frac{1}{4} \times 20 + 35 (= 335)$ or $50 + 65 + 100 + 85 + 35 (= 335)$		3	M1 ft from (b) for adding up the number of squares or finding the total number of books – allow one error or omission
	$500 - '16\frac{3}{4}' \times 20$ oe or $500 - '335'$			M1 ft
		165		A1
				Total 5 marks

3 (a)		cylinder	1	B1
(b)(i)		6	1	B1
(b)(ii)		8	1	B1
(c)	$20 \times 8 \times 11$		2	M1
		1760		A1
				Total 5 marks



9	(a)	$3 \times 4 + 2 \times 7$ or $12 + 14$		2	M1
			26		A1
	(b)	$2 \times (-6)^2 + 3 \times -2$ or $72 - 6$ or $2 \times -6 \times -6 + 3 \times -2$		2	M1
			66		A1
	(c)		$T = 6g + 12h$	3	B3 for $T = 6g + 12h$ oe (B2 for $6g + 12h$ oe or $T = 6g + ah$ or $T = bg + 12h$ or $T = 12g + 6h$ oe) (B1 for $6g + ah$ or $bg + 12h$ or $12g + 6h$ or for an incorrect expression in g and h eg $T = g + h$)
Total 7 marks					

10	(a)	$\frac{88.96}{7.48...}$		2	M1 for 88.96 or 7.48... or for an answer of 11.9 or better
			11.88778...		A1 11.88778(004)
	(b)		12	1	B1 ft provided (a) has at least 3 sig figs
Total 3 marks					

11		$2 \times \pi \times 18$ or $\pi \times 36$		2	M1
			113		A1 for 113 – 113.15
Total 2 marks					

11	(a)	$\frac{6.04(0344...)}{1.11(3552873...)}$		2	M1	Either numerator or denominator correct (at least 3 digits needed) or for an answer of 5.42 to 5.4243 rounded or truncated.
			5.4243(89042...)		A1	accept 5.4243 or 5.4244 or better.
	(b)		5.4	1	B1ft	ft their answer to (a), must have at least 3 sig figs in part (a)
Total 3 marks						
12	(a)		<u>Enlargement</u> <u>scale factor 3</u> <u>centre (0, 0)</u>	3	B1	for enlargement, enlarge, etc so long as no mention of rotation, reflection or translation, flip, move etc.
					B1	SF 3, triple, three times etc. with no mention of a vector, line, angle of rotation.
					B1	Accept centre O or the origin
	(b)	line $x = 5$ drawn or shape in correct orientation, not necessarily in correct position.		2	M1	Can be implied by correct answer.
			Shape with vertices at (7, 2), (7, 4), (8, 3), (9, 3), (9, 2)		A1	
	Total 5 marks					

4	(a)		Qatar	1	B1
	(b)		9	1	B1 allow -9
	(c)		-4	1	B1
Total 3 marks					
5	(a)		Correct line	1	B1 line drawn at $y = -2$
	(b)		$(-1, 2)$	2	B2 for both coordinates correct If not B2, then B1 for one correct coordinate or $(2, -1)$
	(c)		$(d =) 1$	1	B1 accept $(5, 1)$
Total 4 marks					
6	(a)		Trapezium	1	B1
	(b)		F	1	B1
	(c)		4	1	B1 or "four"
	(d)		2	1	B1 or "two"
Total 4 marks					
7	$\frac{3}{8} \times \frac{5}{6}$ oe eg $0.375 \div 6 \times 5$ Allow $0.375 \times 0.83 \dots$ oe		eg $\frac{3}{8} \times 48 = 18$ and eg $\frac{5}{6} \times 18 = 15$	3	M1 for showing intention to multiply the two given fractions or using a number of members that is a multiple of 48 to work out the number of right-handed children.
	eg $\frac{3}{8} \times \frac{5}{6} = \frac{15}{48}$ or $\frac{3}{8} \times \frac{5}{6} = \frac{15}{48}$ $0.375 \times 0.83 \dots = 0.31 \dots$		"15" "48"		M1 For an attempt to multiply fractions or Dividing their 15 by their 48
			$\frac{5}{16}$		A1 dep on M1
	Total 3 marks				

8	for at least two of: 8, 200, 0.5		3	M1
	$\frac{1600}{0.5}$ or 8×400 or 16×200			M1
		3200		A1 dep M1 (allow 3000)
				Total 3 marks

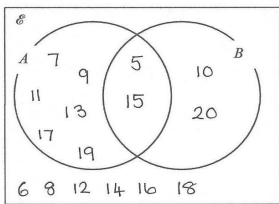
9	(a)(i)	58	1	B1
	(ii) Vertically <u>opposite angle(s)</u> are equal or <u>Vertically opposite</u>		1	B1 reason given dep on a correct angle in (i)
	(b) $DBA = 180 - 132 (= 48)$ or for $132 - 58$		2	M1 48 could be shown clearly on diagram
		74		A1
				Total 4 marks

10		BB, BH, BA RB, RH, RA SB, SH, SA	2	B2 for all 9 combinations with no extras or repeats. (B1 for at least 5 correct combinations (ignoring extras and repeats))
				Total 2 marks



11	(a)	$0.48031(4\dots) + 0.45555(5\dots)$ or $\frac{61}{127} + \frac{41}{90}$		2	M1 Evaluate either fraction correctly as a decimal to at least 5 sf (rounded or truncated) or as a simplified fraction or an answer of 0.935, 0.936, 0.9358 or 0.9359
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	0.93587(05162)		A1 Correct to at least 5 sf (rounded or truncated)
	(b)		0.936	1	B1 ft if at least 4 sf given in (a)
Total 3 marks					
12	(a)	$(T =) 2.5 \times 12 (+) 1.5 \times 5$		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	37.5		A1 Accept 38 with working shown
	(b)	$55 = 2.5d + 1.5 \times 8$ or $55 - 1.5 \times 8 (= 43)$ or $55 - 12 (= 43)$		3	M1 Form a correct equation or subtract time taken for bus stops from 55
		$2.5d = 55 - 1.5 \times 8$ oe or $2.5d = 43$ oe or " 43 " $\div 2.5$ oe			M1 Isolate term in d in a correct equation or a correct calculation for journey length
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	17.2		A1
Total 5 marks					

14	(a)	0.725(806...) or 1.53(9419...) or 14.8(4) or 2.26 or 2.27 or 2.265		2	M1
		Correct answer scores full marks (unless from obvious incorrect working)	2.2652(25539...)		A1
	(b)		2.27	1	B1 ft from (a) dep on a number that has 4 or more significant figures
Total 3 marks					

15		Numbers placed correctly in Venn diagram	3	B3 for a completely correct Venn diagram
				B2 for 2 or 3 correct regions
				B1 for 1 correct region
Total 3 marks				

Question	Working	Answer	Mark	Notes
10	$1.35 \div 3 (= 0.45)$ $[4.15 - (5 \times "0.45")] \div 2$	0.95	3	M1 M1 A1
				Total 3 marks
11 (a)		7.5	1	B1 oe $\frac{15}{2}, 7\frac{1}{2}$
(b) (i)		3.181(983516..)	2	M1 For 57.9121 or 18.2 oe A1
(ii)		3.2	1	B1ft ft as long as (i) has at least 3 sf.
				Total 4 marks
12 (a)(i)		2,3,4,6,7,8	1	B1 All numbers and no others, in any order
(ii)		3,4	1	B1 Both numbers and no others, in any order
(iii)		1,5,9,10	1	B1 All numbers and no others, in any order
(b)		$\frac{3}{10}$	2	M1 $\frac{3}{n}$ ($n > 3$) or $\frac{m}{10}$ ($m < 10$) A1 oe
				Total 5 marks

Question	Working	Answer	Mark	Notes
1	(a)	Tanzania	1	B1
	(b)	823 000	1	B1
	(c)	2410	1	B1 accept –2410
	(d)	ten thousand one hundred and twenty	1	B1
Total 4 marks				

2	(a)		correct bar	1	B1 for bar drawn at correct height of 13 Allow a line instead of a bar
	(b)		Brazil	1	B1
	(c)	29		2	M1 for $\frac{29}{k}$ with $k > 29$ or $\frac{n}{113}$ with $n < 113$ oe May work in millions Allow incorrect notation e.g. 29 out of 113 or 29:113 oe
			$\frac{29}{113}$		A1 oe Allow 0.26 or 0.256(6371.....)
					Total 4 marks



8	$28 \div 4 (= 7)$			M1
				M1 for using at least six lengths correctly (may be seen on diagram or in calculation)
	e.g. “7” + “3” + 4 + “3” + “7” + 4 + “7” + 4 + “7” + 4			M1 for a complete method to find perimeter
		50	4	A1
				SC Award B2 for an answer of 66 or 68
				Total 4 marks

9	a		24.9	1	B1
	b		7.1	1	B1 oe
	c	$7 \div 8 \times 100$ oe			M1
			87.5	2	A1
					Total 4 marks

International GCSE Maths				
Apart from questions 8d, 15, 16, 18b, 22, 23 (where the mark scheme states otherwise) the correct answer, unless clearly obtained from an incorrect method, should be taken to imply a correct method.				
Question	Working	Answer	Mark	Notes
1 (a)		Pacific	1	B1 Allow P or incorrect spelling so long as meaning is clear Allow 135 663
(b)		Seventeen thousand nine hundred [and] sixty eight	1	B1 Must be all in words – allow incorrect spelling as long as meaning is clear, eg thosand, hunded, hunder, etc
(c)		67 000	1	B1 or '67 thousand'
(d)		181 052	1	B1 cao
Total 4 marks				
Question	Working	Answer	Mark	Notes
2 (a)		4	1	B1 or 'four'
(b)(i)		54	1	B1 allow from 52 to 56 (inclusive) including decimals eg 52.5
(b)(ii)		Acute	1	B1 allow incorrect spelling as long as meaning is clear
(c)(i)		[Square based] Pyramid	1	B1 allow rectangular based pyramid or 'pyramid' allow incorrect spelling as long as meaning is clear
(c)(ii)		8	1	B1 or 'eight'
Total 5 marks				



International GCSE Maths				
Q	Working	Answer	Mark	Notes
1 (a)		El Salvador	1	B1
(b)		400	1	B1 Allow hundred oe
(c)		Bahamas & Syria	1	B1
(d)		Three thousand, three hundred and seventy one	1	B1
				Total 4 marks
2 (a)(i)		(3, 4)	1	B1
(ii)		(-1, 2)	1	B1
(b)		Cross at (7, 2)	1	B1
(c)		(1, 3)	2	B2 for (1, 3) (B1 for one coordinate correct)
				Total 5 marks



International GCSE Maths				
Apart from questions 23 and 24 the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method				
Q	Working	Answer	Mark	Notes
1 (a)		12 of the 15 squares shaded	1	B1 cao
(b)		$\frac{3}{4}$	1	B1 cao
(c)		0.03	1	B1 cao
(d)		14	1	B1 cao
				Total 4 marks
2 (a)		Mandarin Chinese	1	B1 allow 918 000 000, Mandarin, Chinese
(b)		115	1	B1 cao
(c)		300	1	B1 cao
(d)		Eight hundred and sixty one thousand, seven hundred	1	B1
				Total 4 marks



IGCSE Maths - Paper 1FR (1-9) 2018 June Mark scheme

The correct answer, unless clearly, obtained by an incorrect method, should be taken to imply a correct method with the exception of Q24					
Question		Working	Answer	Mark	Notes
1	a		African buffalo	1	B1 accept buffalo or 725
	b		100	1	B1 accept (one) hundreds
	c		1192	1	B1 accept –1192
	d	$800 \times 20 \div 1000$	16	2	M1 ft for any number in the table A1
2		$70 + 100 + 70 + 100 = 340$ “340” $\times 3$	1020	3	M1 for working out the perimeter M1 dep on first M mark A1
3	a		$\frac{4}{15}$	1	B1 Do not accept 4:15 but accept 4/15
	b		4 squares shaded	1	B1
4	a		R marked	1	B1
	b		Trapezium	1	B1
	c		65	1	B1 accept answer in the range 63 – 67



3	(a)		Mweru	1	B1
	(b)		six thousand four hundred and five	1	B1
	(c)		69 000	1	B1
	(d)	5299 × 5.5 =29 144.5 or 29 500 ÷ 5299 = 5.567... or 29 500 ÷ 5.5 =5363.63...		2	M1 for a relevant calculation and answer (rounded or truncated to 2 sf or better)
			yes/no with correct figures and reason		A1 correct figures and a reason that refers to (Lake) Malawi (or 29 500) or refers back to $5\frac{1}{2}$ (or 5.5) or refers to (Lake) Albert (or 5299)
Total 5 marks					

4	(a)		unlikely	1	B1
	(b)		× at $\frac{1}{2}$	1	B1
	(c)		× at 0	1	B1
					Total 3 marks

International GCSE Maths						
Apart from Q2 (where the mark scheme states otherwise) the correct answer, unless obtained from an incorrect method, should be taken to imply a correct method.						
Question		Working	Answer	Mark		Notes
1	(a)		Nine thousand two hundred and eighty	1	B1	
	(b)		New York	1	B1	
	(c)		700	1	B1	
	(d)		Kolkata	1	B1	
	(e)		17 000	1	B1	
Total 5 marks						
2	(a)		24	1	B1	
	(b)	$26 - 16 (= 10)$	10	2	M1 A1	
	(c)		One and half naan breads drawn	1	B1	
	(d)	$24 + 20 + 16 + 26 + 12 (= 98)$ or $12 \times 8 + 2 (= 98)$	No and 98 seen	2	M1 A1	Must see "No" or "Not correct", "Wrong" etc.
Total 6 marks						
3	(a)		Obtuse	1	B1	
	(b)		Octagon	1	B1	
Total 2 marks						
4	(a)		Marked at 0	1	B1	
	(b)		Marked at 0.5	1	B1	
Total 2 marks						



International GCSE Maths				
Apart from questions 16, 21b, 25bii (where the mark scheme states otherwise) the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method				
Q	Working	Answer	Mark	Notes
1	(a)	Ojos del Salado	1	B1
	(b)	8 tens	1	B1 accept 80, tens
	(c)	Six thousand and forty six	1	B1 cao
	(d)	5100	1	B1 cao
	(e)	2370	1	B1 accept –2370
Total 5 marks				
2	(a)(i)	Three different numbers less than or equal to 9	1	B1 cao e.g. 1, 2, 3 or 3, 6, 9
	(a)(ii)	Three different multiples of ten	1	B1 cao e.g. 10, 20, 30 or 20, 40, 60
	(b)	A cross at 0.5	1	B1 cao
Total 3 marks				
3	$(36 - 25) \times 7.45$ oe		3	M2 for a complete method
		81.95		(M1 for $36 - 25 (= 11)$ or for $W \times 7.45$ where W is their weight)
				A1
Total 3 marks				



International GCSE Maths				
Apart from Questions 6b, 9, 11, 18, 20b and 21a (where the mark scheme states otherwise), the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.				
Q	Working	Answer	Mark	Notes
1 (a)		Gazientep	1	B1
(b)		Two thousand, five hundred and thirty four	1	B1
(c)		2350	1	B1 cao
(d)		608	1	B1 Accept –608
(e)		4	1	B1 cao
				Total 5 marks
2 (a)		$8a$	1	B1 cao
(b)		$24b$	1	B1 cao
(c)		27	1	B1 cao
				Total 3 marks
3 (a)(i)		C	1	B1 cao
(ii)		A	1	B1 cao
(b)		Correct reason	1	B1 e.g. for probability cannot be more than 1 oe It adds to 1 oe Scale goes to 1 oe It has to be below 1 oe
				Total 3 marks

International GCSE Maths				
Apart from Questions 9, 10, 17, 18b, 28 the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method				
Q	Working	Answer	Mark	Notes
1 (a)		Tuesday	1	B1 accept Tues, Tue, Tu Allow 11 362
(b)		Nine thousand six hundred and fifty three	1	B1
(c)		8930	1	B1 cao
(d)		9 hundreds	1	B1 accept 100(s), hundred(s), 900, nine hundred(s)
(e)		17 391	1	B1 cao
				Total 5 marks

2 (a)		unlikely	1	B1
(b)		× at 0	1	B1
(c)		1 odd number and 2 even numbers	1	B1
				Total 3 marks

International GCSE Maths				
Apart from questions 11, 18, 20, 21b and 26 (where the mark scheme states otherwise) the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method				
Q	Working	Answer	Mark	Notes
1 (a)		Saimaa	1	B1 Accept 13 600
(b)		Six thousand one hundred and twenty four	1	B1
(c)		6189	1	B1 cao
(d)		60	1	B1 or 6 tens or sixty
(e)		3808 & 4361	1	B1 accept Kentucky and Superior
				Total 5 marks
2 (a)		15p	1	B1 cao
(b)		36q	1	B1 cao
(c)		3.75	1	B1 or $\frac{15}{4}$ or $3\frac{3}{4}$ oe
				Total 3 marks



International GCSE Maths				
Values in quotation marks must come from a correct method previously seen unless clearly stated otherwise.				
Q	Working	Answer	Mark	Notes
1 (a)		Laerdal	1	B1 allow incorrect spelling
(b)		900	1	B1 allow 9 hundreds
(c)		St Gotthard	1	B1 allow incorrect spelling
(d)		twelve thousand nine hundred (and) forty	1	B1 allow incorrect spelling
(e)		31 512	1	B1 cao
				Total 5 marks



International GCSE Maths				
Values in quotation marks must come from a correct method previously seen unless clearly stated otherwise.				
Q	Working	Answer	Mark	Notes
1 (a)		Montana	1	B1
(b)		314 200	1	B1
(c)		4 thousands	1	B1 accept 4000, thousands
(d)		420 727	1	B1
(e)		Twenty three thousand, eight hundred (and) seventy one	1	B1
				Total 5 marks
2 (a)		unlikely	1	B1
(b)		× at 1	1	B1
(c)		2 numbers which are even	1	B1
				Total 3 marks
3 (a)		5.3 cm or 53 mm or 5cm 3mm	2	B2 for 5.3 cm or 53 mm or 5cm 3mm (allow 5.1 – 5.5 cm or 51 – 55 mm or 5cm 1mm – 5cm 5 mm) (B1 for 5.3 (allow 5.1 – 5.5) or 53 (allow 51 – 55) or cm with a value from 4.8 – 5.8 or mm with a value from 48 – 58)
(b)		109	1	B1 (+ 2)
(c)		hexagon	1	B1
				Total 4 marks



International GCSE Maths				
Values in quotation marks must come from a correct method previously seen unless clearly stated otherwise.				
Question	Working	Answer	Mark	Notes
1 (a)		Venezuela	1	B1 Allow incorrect spelling if meaning is clear. Allow V Accept the numerical answer 926 690 May be written as eg 926, 690
(b)		one hundred (and) sixty three thousand (and) eight hundred	1	B1 Allow incorrect spelling if meaning is clear.eg hunder/hudred, sixty/sisty for sixty etc
(c)		(7) hundreds circled	1	B1 (7) hundreds clearly indicated with no other words indicated
(d)		174 000	1	B1 Allow 'one hundred and seventy-four thousand' or 174 thousand
(e)		582 474	1	B1
				Total 5 marks



International GCSE Maths				
Apart from questions 11, 15, 19 and 22b the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.				
Q	Working	Answer	Mark	Notes
1 (a)		Tonga	1	B1 cao
(b)		5 hundred(s)	1	B1 for 5 hundred(s) or 500
(c)		four thousand, four hundred and thirty seven	1	B1 all numbers must be as words
(d)		8458	1	B1 cao
(e)	8047 + 2864		2	M1 for 'any value from table' + 2864
		10 911		A1 cao
				Total 6 marks
2 (a)		sphere	1	B1
(b)		12	1	B1 cao
(c)		10	1	B1 cao
				Total 3 marks

Apart from Questions 18 & 19 (where the mark scheme states otherwise), the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.

Question	Working	Answer	Mark	Notes
1 (a)		$\frac{5}{25} \frac{8}{40}$	2	B1 B1 B2 for 2 correct only. B1 for 1 correct only – 1 mark for each incorrect tick if more than 2 ticks
(b)		Octagon	1	B1 Accept misspellings
(c)		6 'sectors' shaded oe	1	B1 Shading equivalent to 6 sectors
(d)	$\frac{56 \times 3}{4} (= \frac{168}{4})$ or $\frac{56}{4} \times 3 (= 14 \times 3)$		2	M1
		42		A1
Total 6 marks				
2 (a)		Sevilla	1	B1 Accept misspellings
(b)		66 000	1	B1
(c)		600	1	B1 Accept in words ie 6 hundred(s), six hundred(s)
(d)		2 : 3	1	B1 Allow 1:1.5
(e)	$\frac{72}{100}$		2	M1 or $\frac{36}{50}$
		$\frac{18}{25}$		A1
Total 6 marks				



Question	Working	Answer	Mark	Notes
20 (a)		12.35	1	B1 or 12.349
(b)		12.25	1	B1
21	$6000 \times 0.015 (= 90)$ or $6000 \times 1.015 (= 6090)$ $(6000 + '90') \times 0.015 (= 91.35)$ $('6090' + '91.35') \times 0.015 (= 92.72)$ $('6090' + '91.35' + '92.72') \times 0.015$ $(= 94.11..)$	368.18	3	M1 or for $\frac{4 \times 1.5}{100} \times 6000 (= 360)$ or 6360 M1 for complete method (4 years) for total value or sight of 6368..... M2 for 6000×1.015^4 A1 accept 368 – 368.20
22	$\tan '35' = \frac{x}{15}$ or $\tan '55' = \frac{15}{x}$ $x = 15 \times \tan '35' (= 10.5...)$ or $x = \frac{15}{\tan '55'}$ ($= 10.5...$) $10.5 + 37$	47.5	4	M1 Forming a right-angled triangle with angle 125 – 90 marked or 55 marked M1 M1 A1 Awrt 47.5

18	$\pi \times 7.2^2 \div 2$ (= 81.4....)			M1	allow 81.3 – 81.5 for area of semi circle
	“81.4” $\div 6$ (= 13.5...) or 12×6 (= 72) or “81.4” $\div 12$ (= 6.7...)			M1	(dep) allow 13.5 – 13.6 for the number of boxes needed (NB: $12 \times 6 = 72$ alone is 0 marks)
		No with correct figures	3	A1	
Total 3 marks					

19	a		4.35	1	B1	accept 4.349
	b		4.25	1	B1	cao
Total 2 marks						

20	$(x \pm 9)(x \pm 4)$	$\frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 1 \times (-36)}}{2 \times 1}$ or $\frac{5 \pm \sqrt{25 + 144}}{2}$			M1	or $(x + a)(x + b)$ where $ab = -36$ or $a + b = -5$ OR correct substitution into quadratic formula (condone one sign error in a , b or c) (if + rather than $\pm$ shown then award M1 only unless recovered with answers)
	$(x - 9)(x + 4)$	$\frac{5 \pm \sqrt{169}}{2}$ or $\frac{5 \pm 13}{2}$			M1	or $\frac{5 \pm \sqrt{169}}{2}$ or $\frac{5 \pm 13}{2}$
			9, -4	3	A1	dep on at least M1
Total 3 marks						

18	(a)	$\frac{12}{4}(=3)$ or $\frac{4}{12}(=0.\dot{3})$ or $\frac{BC}{4} = \frac{16.5}{12}$ or $BC \div 16.5 = 4 \div 12$ or $(BC =) 16.5 \div \frac{12}{4}$		2	M1 correct scale factor (given as 3 or a fraction or a ratio) or correct equation using BC or a correct expression for BC
			5.5		A1
	(b)		$3x$	1	B1 allow $3 \times x$ or $x \times 3$ ft their “3” in (a)
					Total 3 marks

19	(a)		17.75	1	B1 oe
	(b)		18.25	1	B1 oe 18.249 (allow 18.2499...)
					SC B1 for 17.5 in (a) and 18.5 (or 18.49) in (b)
					Total 2 marks

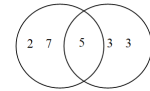
20	(a)	$700 \div 200 (= 3.5)$		3	M1 or 3.5 shown on diagram – within bounds of overlay
					M1 for line drawn at correct angle $\pm 2^\circ$ within bounds of overlay
			C indicated in correct position		A1 for C drawn within bounds of overlay, inclusive of lines
	(b)		(1 :) 20 000	1	B1
					Total 4 marks



18	(a)		1.45	1	B1 allow 1.449 or 1.44999(9...)
	(b)		1.35	1	B1 cao SCB1 for (a) 1.35 (b) 1.45 [score B0B1]
					Total 2 marks



15	eg $119 \div 140 (\times 100)$ or $0.85 (\times 100)$ or $\frac{17}{20} (\times 100)$ oe		2	M1
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	85		A1
				Total 2 marks

16	45, 90, 135, 180... and 70, 140, 210, 280... or 2, 5, 7 and 3,3,5 or  or $\frac{45 \times 70}{5}$ or 2, 3, 3, 5, 7 oe or <table border="1"><tr><td>5</td><td>45</td><td>70</td></tr><tr><td></td><td>9</td><td>14</td></tr></table> or 5, 9, 14 oe	5	45	70		9	14		2	M1 for any correct valid method eg for starting to list at least four multiples of each number or 2, 5, 7 and 3, 3, 5 seen (may be in a factor tree, ignore 1) or a fully correct Venn diagram or 5, 9, 14 oe (could be in a table)
5	45	70								
	9	14								
	Correct answer scores full marks (unless from obvious incorrect working)	630		A1 Allow $2 \times 3^2 \times 5 \times 7$ oe eg $5 \times 9 \times 14$						
				Total 2 marks						

17		142.75	1	B1
		142.85	1	B1 accept 142.8499... or 142.849
				Total 2 marks

Question	Working	Answer	Mark	Notes
19	eg $5x - 1 = 3x + 7.4$ oe or eg $10x - 2 + 48$ or $6x + 14.8 + 48$ or $24 + 24 + 5x - 1 + 3x + 7.4$ oe		4	M1 a correct equation to find x or a correct expression for the perimeter in terms of x
	$x = 4.2$			A1 the correct value of x (implies previous mark)
	$2 \times 24 + 2(5 \times "4.2" - 1)$ oe or $2 \times 24 + 2(3 \times "4.2" + 7.4)$ oe or $2 \times 24 + (5 \times 4.2 - 1) + (3 \times 4.2 + 7.4)$ oe eg $24 + 24 + 20 + 20$ oe			M1dep on a correct method to find the perimeter – use of positive x from correct working (1 st M1 awarded for an equation) and only if used the same measurement for AD and BC
	working required	88		A1 cao dep on either M1 or $x = 4.2$
Total 4 marks				

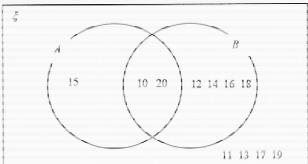
Question	Working	Answer	Mark	Notes
20 (a)		2.745	1	B1
(b)		2.755	1	B1
(c)	$(80 \times 60) \div 2^2$		2	M1 For two of 80, 60, 2 or 4 rather than 2^2 oe
	eg $(80 \times 60) \div 2^2 = 1200$ working with rounded values seen required	1200		A1 dep on M1 for answer coming from the use of the 3 rounded numbers – if 1200 seen then ignore any other working and comments
Total 4 marks				



Question	Working			Answer	Mark	Notes
6 (a)				Correct completed table	3	M2 for at least 4 correct entries or M1 for at least 2 correct entries
	Biology	Chemistry	Physics	TOTAL		
boys	25	5	7	37		A1 fully correct table.
						
girls	6	4	33	43		
						
TOTAL	31	9	40	80		
						
(b)				43	1	B1 0.5375 or 0.538
				80		
(c)				4	2	M1 For $\frac{4}{n}$ ($n > 4$) or $\frac{m}{43}$ ($m < 43$)
				43		A1 Correct probability (allow 0.093(02...)) NB:penalise incorrect notation in (b) and (c) once only
7 (a)				14	1	B1
(b)				220	2	M1 A1 For $-10, \times 2$ or 110
8				8 hours 35 mins	2	B2 for (B1 for 8 hours or 35 minutes or 515 minutes)
9	(2 × 2.10) + (2 × 1.80) (= 7.80) or 20 – 8.75 (=11.25) or [20 – (‘7.80’ + 8.75)] ÷ 3 or [11.25 – 2(2.10 + 1.80)] ÷ 3			1.15	3	M1 M1 A1

8		$1200 \div 45 (=26.66\ldots)$ $1200 - ("26" \times 45)$	30	3	M1 M1 dep A1	or $26 \times 45 (=1170)$
						Total 3 marks
9		(minutes =) $35 + 15 (= 50)$ or (hours =) 5	5 hours 50 minutes	2	M1 A1	Accept 4 hours and 110 minutes oe
						Total 2 marks



16			3	B3 B3 for all 4 correct regions B2 or 2 or 3 correct regions B1 for 1 correct regions
Total 3 marks				

17	(a)		x^7	1	B1
	(b)	eg $7^8 \times 7^4 = 7^{12}$ or $7^8 \div 7^3 = 7^5$ or $7^5 \times 7^4$ or $7^4 \div 7^3 = 7$ or $7^8 \times 7$ or $7^{12} \div 7^3 = 7^{12-3}$		2	M1 for one correct step – must be written as a power of 7
			7^9		A1 for 7^9
Total 3 marks					

18	32.4×100^3		2	M1 for 32.4×100^3 oe
		32 400 000		A1 for 32 400 000 accept 3.24×10^7
Total 2 marks				

Question	Working	Answer	Mark	Notes
4 (a)		$\frac{11}{15}$	1	B1oe
(b)		$4\frac{3}{5}$	1	B1oe eg $4\frac{6}{10}$
(c)		$\frac{23}{100}$	1	B1oe eg $\frac{46}{200}$
(d)		0.4	1	B1 Accept 0.40
(e)		3.555, 3.61, 3.7, 3.82, 3.9	1	B1
Total 5 marks				
5	(BC =) $96 - 30 (=66)$ $96 + (66 \div 3)$ oe		3	M1
		118		M1
				A1
Total 3 marks				
6		9 hours 45 mins	2	B2 B1 for 9 hours or 45 minutes
Total 2 marks				
7 (a)		(2, 3)	1	B1
(b)		(-3, -1)	1	B1
(c)		(-0.5, 1)	2	B2 B1 for (-0.5, y) or (x, 1) or (1, -0.5)
Total 4 marks				

International GCSE Maths				
Apart from question 6d, 9b, 15, 18, 21c (where the mark scheme states otherwise) the correct answer, unless clearly obtained from an incorrect method, should be taken to imply a correct method.				
Q	Working	Answer	Mark	Notes
1 a		26 or 64	1	B1 or both 26 and 64 with no others
	b	21 or 39	1	B1 or both 21 and 39 with no others
	c	17 or 31	1	B1 or both 17 and 31 with no others
	d	1 or 64	1	B1 or both 1 and 64 with no others
				Total 4 marks
2 a		3000	1	B1
	b	6.5	1	B1
				Total 2 marks
3 a			2	M1 for at least 2 correct tallies or frequencies
		2, 5, 4, 3, 2		A1 mark frequencies only – in either column
	b	1	1	B1 allow ft from (a)
	c	4	1	B1
4 a		New York	1	B1 accept –15
	b	25	1	B1 accept –25
	c	–28	1	B1
				Total 3 marks

9	$360 - (59 + 115 + 68) (= 118)$		4	M1 angle values may be seen on diagram throughout
		$x = 62$		A1 from correct working
	Angles in a quadrilateral add up to 360. Accept "4-sided shape" Angles on a straight line add to 180° Base angles in an isosceles triangle (are equal)			B2 (dep on M1) for all correct reasons for their method (B1 (dep on M1) for 1 correct reason for their method)
				Total 4 marks

10	$5.75 \div 5 (= 1.15)$		3	M1 for finding the cost of one chocolate bar
	e.g. $(7.85 - 2 \times "1.15") \div 3$			M1 (dep on M1) for a complete method to find the cost of one packet of sweets
		1.85		A1 cao
				Total 3 marks

11		11 hours and 45 minutes	2	B2 for 11 hours and 45 minutes (B1 for 11 hours or 45 minutes)
				Total 2 marks



8	(a)		$11g - 2h$	2	B2	B1 for one correct term (B1 for $11g + - 2h$)
	(b)		$28am$	1	B1	oe
	(c)	$5x = 12 + 7$ oe or $(12 + 7) \div 5$		2	M1	A correct equation with number terms one side and x the other or for a correct process to find x
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	3.8		A1	oe $\frac{19}{5}$ or $3\frac{4}{5}$
	(d)		$35k + 15$	1	B1	or $15 + 35k$ allow $35x + 15$
	(e)		$3(3y + 4)$	1	B1	allow $3(3y + 4)$ or $3(3x + 4)$
	(f)	$3c$ (allow $3 \times c$ or $c3$) or $c + 7$		3	M1	allow $3c + 7$
		$c + 3c + c + 7$			M1	correct unsimplified expression
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	$5c + 7$		A1	allow $5 \times c + 7$
						Total 10 marks
9			5 (hours) 50 (minutes)	2	B1, B1	
						Total 2 marks



International GCSE Maths A June 2018 – Paper 2F Mark scheme				
Apart from Questions 20 and 23 where the mark scheme states otherwise, the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method.				
Question	Working	Answer	Mark	Notes
1 (a)		63 100	1	B1
(b)		46800	1	B1
(c)		73.7	1	B1
(d)		9	1	B1
				Total 4 marks
2 (a)		E	1	B1 Accept 0.2
(b)		D	1	B1
(c)		C	1	B1 Accept 0.5
				Total 3 marks
3	400 and 1300 or 900		3	M1 read scales correctly or $1300 \times 0.4 (=520)$ or $400 \times 0.4 (=160)$ or $9 \times 0.4 (=3.6)$ or $(x - y) \times 0.4$ where x and y are readings and $x = 1300$ or $y = 400$
	$(1300-400) \times 0.4$ or "520" – "160"			M1 Difference of both correct readings $\times 0.4$ oe
		360		A1 cao
				Total 3 marks

Question	Working	Answer	Mark	Notes
7 (a)		(pentagonal) prism	1	B1
(b)		7	1	B1
(c)		15	1	B1
				Total 3 marks
8 (a)		6 45 am	1	B1
(b)		3 hr 45 mins	2	M1 Attempt to count on from 0725 to 0800 or to count from 0725 to 1025 oe A1
				Total 3 marks
9 (a)		2	1	B1
(b)	$20 \div 2 (= 10^{\text{th}})$ or $(20 + 1) \div 2 (= 10.5^{\text{th}})$	1	2	M1 Or evidence of correct working by table or listing numbers A1
(c)	$(6 \times 0) + (5 \times 1) + ((7 \times 2) + (1 \times 3) + (0 \times 4) + (1 \times 5))$ $(0) + 5 + 14 + 3 + (0) + 5$	27	2	M1 For at least 4 correct products with intention to add. A1
				Total 5 marks

Question	Working	Answer	Mark	Notes
12	e.g. $16s + 28s + 35s (= 79s)$ $6 \text{ min} + 4 \text{ min} + 4 \text{ min} + "79s" (= 15 \text{ min } 19s)$ $20 \text{ min} - "15 \text{ min } 19s"$	4 41	3	M1 Complete method to find the time taken by the three songs M1 (dep) A1
13 (a)	$-9, (-7), -5, -3, (-1), (1), 3$	Table	2	B2 all correct (B1 2 or 3 correct)
(b)		Correct line	2	M1 for at least 5 of their points plotted correctly (ft if at least B1 earned in (a)) A1
(c)		$\times$ P in a correct place	2	M1 for a point marked above their line or for a point marked to the left of $x = 2$ A1 for a point marked above their line and marked to the left of $x = 2$ (SC B1 for the correct region identified but no point plotted)
14 (a)		48	1	B1
(b)		14 641	1	B1

Question	Working	Answer	Mark	Notes
1 (a)		0.23	1	B1
(b)		70	1	B1
(c)		0.2	1	B1
(d)		6 triangles shaded	1	B1
(e)		79	1	B1
2 ai		Likely	1	B1
aii		Impossible	1	B1
(b)		$\times$ at $\frac{3}{10}$	1	B1
3	$150 \div 6$ (=25) or $6 \times 25 = 150$ or $1.03 \div 6$ (=0.17...) "25" $\times$ 1.03 or "0.17..." $\times$ 150	25.75	3	M1 A1 dep
4 (a)		5m	1	B1
(b)		35p	1	B1
(c)		5	1	B1
(d)		15	1	B1

Question	Working	Answer	Mark	Notes
1 (a)		7.002, 7.013, 7.04, 7.831, 7.9	1	B1
(b)		0.07	1	B1
(c)		$\frac{47}{100}$	1	B1
(d)		63	1	B1
(e)		3000	1	B1
Total 5 marks				

Question	Working	Answer	Mark	Notes		
2	700 or 0.45	15	3	M1	for a correct conversion	M2 for $45 \times 15 = 675$ or $0.45 \times 15 = 6.75$
	M1			Units may not be consistent ft from their incorrect conversion		
				A1		
				Total 3 marks		

5	(a)		14	1	B1 Allow -14
	(b)		18	1	B1 Allow -18
	(c)		-12	1	B1
Total 3 marks					

6	(a)		tangent	1	B1
	(b)		Radius drawn	1	B1 Intention clear – do not accept diameter
	(c)		230	1	B1
Total 3 marks					

7	$4 \times 2.40 + 1.20 + 5.75 (= 16.55)$		3	M1	or subtracting 2 of 4×2.40 , 1.20, 5.75 from 20 or $20 - 5.75 (= 14.25)$ and $4 \times 2.40 + 1.20 (= 10.8(0))$
	$20 - (4 \times 2.40 + 1.20 + 5.75) (= 3.45)$			M1	or "14.25" – "10.8(0)" (= 3.45)
		1.15		A1	
Total 3 marks					

8	(a)		$4a$	1	B1
	(b)		$15c^2$	1	B1
	(c)		$8e + 3g$	2	B2 B1 for 8e or 3g seen
	(d)		23	1	B1
	(e)		$5(y + 3)$	1	B1
	(f)	$H + w = 3y$ or $-H - w = -3y$ or $\frac{H}{3} = y - \frac{w}{3}$		2	M1
			$y = \frac{H+w}{3}$		A1 oe e.g. $y = \frac{-H-w}{-3}$, $y = \frac{H}{3} + \frac{w}{3}$
Total 8 marks					



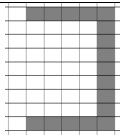
4	(a)	pentagon	1	B1
	(b)	85	1	B1 for $83 - 87$
	(c)	parallel sides marked	1	B1 No additional sides marked
	(d)	No with reason	1	B1 No and, for example, $12 \div 4 = 3$ but $5 \div 3$ does not equal 3
Total 4 marks				
5	$20 - 2.35 (=17.65)$		3	M1
	'17.65' $\div 0.74 (= 23.8\dots)$ or 24			M1 A clear attempt to subtract 0.74 23 times
		23		A1
Total 3 marks				

3	(a)		A and D	1	B1
	(b)		Correctly enlarged shape	2	B2 A correctly drawn shape (B1 for a shape with 3 sides correctly enlarged)
	(c)		hexagon	1	B1 Condone incorrect spelling if meaning is unambiguous
Total 4 marks					
4	(a)		evens	1	B1
	(b)		Cross at 0	1	B1
	(c)		Cross at the 2 nd mark along	1	B1 ie the mark before $\frac{1}{2}$
	(d)		Cross at the 4 th mark along	1	B1 ie the mark after $\frac{1}{2}$
Total 4 marks					
5	(a)		$3w$	1	B1
	(b)		$8a$	1	B1
	(c)		f^5	1	B1
	(d)		$9c - 2h$	2	B2 (B1 for one correct term)
	(e)		$5(2d + 3)$	1	B1
	(f)	$e - g = 7t$ or $\frac{e}{7} = t + \frac{g}{7}$ oe		2	M1
			$t = \frac{e - g}{7}$		A1 oe e.g. $(e - g) \div 7$
Total 8 marks					
6		$30 \div 3.05 (= 9.8...)$		3	M1 oe, e.g. adding 9 lots of 3.05
		$30 - 9 \times 3.05$ oe			M1
			2.55		A1 oe
					Total 3 marks

7	a		(3, -1)	1	B1
	b		(×) at (-2, -4)	1	B1 condone missing label as long on unambiguous
	c		(-1, 2)	2	B2 B1 for (-1, a) where $a \neq 2$ or (b, 2) where $b \neq -1$
	d		$x = 4$ drawn	1	B1
					Total 5 marks

8			3	B3 For the correct time of 13 50 or 1.50 pm or 1.50 in the afternoon oe (B2 for 1.50 or 1.50 am or stating 2 hours 40 mins or 160 mins or intention to add all 4 times onto 11.10 B1 for intention to add all 4 times together or evidence of intention to add on 2 or 3 times to 11 10)
		13 50		Total 3 marks



5	(a)		Correct shape	1	B1 cao
	(b)		17, 21	1	B1 cao
	(c)		33	1	B1 cao
	(d)		The numbers of shaded squares are odd numbers	1	B1 Accept e.g. 50 is an even number or the sequence is all odd numbers or 49 is in the sequence so 50 can't be as it's only one more or 53 is the next number after 49 or 49 and 53 are in the sequence (so not 50) or nth term is $4n + 1$ and for 50 $n = 12.25$ / not an integer
Total 4 marks					

6	$6 \times 100 (= 600)$ or $17.5 \div 100 (= 0.175)$		3	B1
	"600" $\div 17.5 (= 34.28\dots)$ or $6 \div "0.175" (= 34.28\dots)$			M1 ft incorrect conversion
		34		A1 cao
Total 3 marks				



7	(a)		$6p$	1	B1
	(b)		$8y^2$	1	B1
	(c)		e^5	1	B1
	(d)		$20cd$	1	B1
	(e)		26	1	B1
	(f)	$424 = 4n$	106	2	M1 For 424 or $324 + 225 - 125$ with at most one error
					A1 SCB1 for 524 or 674
	(g)		$3(3t - 2)$	1	B1
					Total 8 marks

8		3 kg = 3000 g or 150 g = 0.15 kg or 180 g = 0.18 kg or 1350 g = 1.35(0) kg		3	B1 may be seen used as part of a calculation
		$3 \times 150 + 5 \times 180 (= 1350)$ $3 \times 0.15 + 5 \times 0.18 (=1.35(0))$			M1 Could use their converted values
			1650		A1
					Total 3 marks

9	(a)		1	2	3	4	5	6		2	B2 B2 for all scores completed correctly. B1 for 6, 7, 8 or 9 scores completed correctly
		6	5	4	3	2	1	0			
		7	6	5	4	3	2	1			
		8	7	6	5	4	3	2			
	(b)								$\frac{15}{18}$	1	B1ft oe ($\frac{5}{6}$ or 0.83(33...) or 83.(33..)%) ft from complete table
	(c)								$\frac{9}{18}$	1	B1ft oe Penalise incorrect notation once only ft from complete table
Total 4 marks											



6	2 [litres] = 2000 [millilitres] or 300 [millilitres] = 0.3 [litres]		3	B1 oe for a correct conversion within working
	“2000” ÷ 300 (= 6.66...) oe or 2 ÷ “0.3” (= 6.66...) oe or 300 + 300 + 300 + 300 + 300 + 300 (= 1800) oe or 0.3 + 0.3 + 0.3 + 0.3 + 0.3 + 0.3 (= 1.8) oe or 300 + 300 + 300 + 300 + 300 + 300 (= 2100) oe or 0.3 + 0.3 + 0.3 + 0.3 + 0.3 + 0.3 (= 2.1) oe			M1 Allow use of their converted values Allow 300 + ... + 300 = 1800 or 0.3 + ... + 0.3 = 1.8 If adding 300 or 0.3 they must have sufficient values just below or just above their amount of squash
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working eg a wrong conversion)</i>	200 millilitres or 0.2 litres		A1 Must have correct units (ml or l can be used) Must come from correct working
				Total 3 marks

9	25 ÷ 3 (= 8.(33...)) or use of 8×2 (= 16) or 8×3 (= 24) or a diagram indicating 16 pens oe (eg 34 34 0, 34 34 0 etc showing need to pay for 16 pens [+1]) or a diagram indicating a minimum of 24 pens oe (eg 68 68 68 68 68 68 68 68)		3	M1
	$34 \times '16'$ + 34 oe 68+68+68+68+68+68+68+68+34 oe			M1 for a complete method
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	578		A1
				Total 3 marks



Question	Working	Answer	Mark	Notes
6	$350 \times 91 (= 31\,850)$ or $28\,938 \div 91 (= 318)$		3	M1 for converting one cost to the other currency
	$"31\,850" - 28\,938 (= 2912)$ or $350 - "318" (= 32)$			M1 for finding difference, accept $28\,938 - "31\,850" (= -2912)$ or $"318" - 350 (= -32)$
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	2912 rupees or £32		A1 must include units
Total 3 marks				

Question	Working	Answer	Mark	Notes
7		FB, FC, FL, FR, PB, PC, PL, PR, SB, SC, SL, SR	2	B2 for all 12 combinations and no extras or repeats If not B2 then B1 for at least 4 correct combinations (ignoring repeats and extras)
Total 2 marks				

8	2 m written as 200 cm or 35 cm written as 0.35 m		3	B1 made be seen in workings
	“200” ÷ 35 or 2 ÷ “0.35” ($= \frac{40}{7}$ or 5.714...) or indication of 175 (cm) or 1.75 (m)			M1 or clearly adding on 35 or 0.35 at least 5 times with no more than one error or clearly subtracting 35 or 0.35 at least 5 times from 200 or 2 with no more than one error ft incorrect conversion but attempt must have been made to convert
		25		A1
				Total 3 marks



11	(a)	c^6	1	B1
	(b)	$6h^3$	1	B1
	(c)	$x^2 + 5x$	1	B1
	(d)	$3(3y - 4)$	1	B1
	(e)	$T = 15m + 40p$	3	B3 ((B2 for $15m + 40p$ or $T = 15m + xp$ or $T = ym + 40p$ or $T = 40m + 15p$) (B1 for $15m + xp$ or $ym + 40p$ or $40m + 15p$ or for $T =$ an incorrect expression in m and p eg $T = mp$) Allow $15 \times m$ or $m15$ etc
				Total 7 marks

12	$1342 \div 11(=122)$ or $125 \times 11 (=1375)$		3	M1
	$125 - \text{“}122\text{”} (=3)$ or $\text{“}1375\text{”} - 1342(=33)$			M1
		3 euros or 33 (Swedish) Krona		A1 Answer must have correct units which may be shortened eg € or SK or krona
				Total 3 marks

13		BO, BA, BW, FO, FA, FW, CO, CA, CW	2	B2 B2 all correct combinations with no repeats or errors (B1 for at least 4 correct combinations ignoring repeats)
				Total 2 marks

5	e.g. $5950 \div 1000 (= 5.95)$ or $9000 \div 1000 (= 9)$ or $14.5 \times 1000 (= 14\,500)$ or $30 \times 1000 (= 30\,000)$ or $(5950 + 9000) \div 1000 (= 14.95)$		3	M1 for one correct conversion
	e.g. $"5.95" + 14.5 + "9" (= 29.45)$ or $"14.95" + 14.5 (= 29.45)$ or $5950 + "14\,500" + 9000 (= 29\,450)$ or $30\,000 - (5950 + "14\,500" + 9000) = 550$ or $30 - ("5.95" + 14.5 + "9") = 0.55(0)$			M1 for a complete method for adding with their adjusted figures
		Shown with correct figures		A1 e.g. Shown with 29.45 Shown with 29 450 Shown 550 Shown 0.55(0)
Total 3 marks				
6 (a)(i)		5,6	1	B1 oe e.g. $\frac{28}{5}, 5\frac{3}{5}$
(ii)		2744	1	B1 Allow 2,744
(b)(i)		3	1	B1
(ii)		7	1	B1
Total 4 marks				



7	(a)(i)	31	1	B1
	(ii)	Correct explanation	1	B1 e.g. 'I added 6', 'add 6', '+6, $6n - 5$ (need to know 6 and we need to add/go up oe)
	(b)	Correct explanation	1	B1 Acceptable e.g. • Should be 187 oe • 188 is even or not odd • 187 and 193 (are in the sequence) • Terms end in 1, 3, 5, 7, 9 or odd numbers • Sequence is odd • $6n - 5 = 188$ gives a decimal or not a whole number • Need to minus 1 oe Not acceptable e.g. • It goes past 188 oe • 193 is after 188 oe
Total 3 marks				
8	$256 \div 8 (= 32)$ or $8 \times 32 = 256$ or $2.48 \div 8 (= 0.31)$		3	M1 for a correct first step
	$"32" \times 2.48$ or $256 \times "0.31"$			M1 for a complete method or $\frac{1984}{25}$
		79.36		A1
Total 3 marks				

4	(a)		$9y$	1	B1
	(b)		$12p^2$	1	B1
	(c)		6	1	B1
	(d)		-1	1	B1
	(e)		$6c + 2d$	2	B2 for $6c + 2d$ or $2d + 6c$ (B1 for $6c$ or $2d$)
					Total 6 marks

5	$15 - 6.90 (= 8.10)$ or $1500 - 690 (= 810)$		3	M1
	“8.10” $\div 0.55 (= 14.727\dots)$ or “810” $\div 55 (= 14.727\dots)$ or 15			M1
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	14		A1
				Total 3 marks

5	(a)	9.02 + 21.90		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	30.92		A1
	(b)	9.02 + 15.85 (= 24.87) or 33.89 – 9.02 (= 24.87) or 33.89 – 15.85 (= 18.04)		3	M1 allow for one correct and any incorrect cost added and then the total subtracted from 33.89 or 9.02 or 15.85 subtracted from 33.89 after subtraction of an incorrect cost
		33.89 – “24.87” (= 9.02) or 33.89 – 15.85 – 9.02 (= 9.02)			M1 a fully correct method to find the cost of the 3rd parcel
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	2		A1 cao must come from correct working eg 9.02 from clear method If no marks awarded, SCB1 for any 2 costs from table subtracted from 33.89
Total 5 marks					
6	(a)		17 15	1	B1 allow 17.15 17:15 etc
	(b)		3 hours 40 minutes	2	B2 Accept 220 min or $3\frac{2}{3}$ hours (B1 for 3 (hours) or for 40 (minutes) or for an answer such as 2 hours 100 minutes)
Total 3 marks					



3	(a)		2	M1	for at least 2 correct tallies or frequencies
		Correct answer scores full marks (unless from obvious incorrect working)		A1	mark frequencies only – in either column
		Frequencies of 5, 2, 4, 3, 6			If no other marks awarded, award SCB1 for answers of $7 \times \left(\frac{14.5 - 9y}{2} \right) + 3y = 8$
	(b)		3	B3	B1 for labelling the bars (can be abbreviations) B2ft for 5 column heights correct (B1ft for 3 or 4 column heights correct)
		Correct bar chart (ft (a))			
					Total 5 marks

4	(a)		16 15	1	B1	oe eg 16:15, 16.15
	(b)		5 (hours) 25 (minutes)	2	B2	(B1 for 5 (hours) or 25 (minutes) or 325 (minutes) or a time equivalent to 5 (hours) 25 (minutes))
						Total 3 marks

14	(a)		612	1	B1
	(b)	$2580 \div 6.45 (= 400)$ or $2580 \times 0.85 (= 2193)$ or $\frac{0.85}{6.45} (= 0.13(17\dots))$ or $\frac{6.45}{0.85} (= 7.5(88\dots))$		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	340		A1 cao
					Total 3 marks



Question	Working	Answer	Mark	Notes
4			3	B1 For at least one correct conversion eg 800 (m) = 0.8 (km) or 2 (km) = 2000 (m) or 1.7 (km) = 1700 (m) or 6250 (m) = 6.25 (km)
	800 + "2000" + "1700" + x = 6250 oe or "0.8" + 2 + 1.7 + y = "6.25" oe or 6250 – 800 – "2000" – "1700" oe eg 800 + 2000 + 1700 = 4500, 6250 – "4500" or "6.25" – "0.8" – 2 – 1.7 oe eg '0.8' + 2 + 1.7 = 4.5, '6.25' – '4.5'			M1 For a correct equation in x or a correct calculation for x using their 2 <i>converted</i> values (but not original values throughout...some conversion must have been done)
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	1750		A1 An answer of 1.75 (or 1.75 km) or a choice of answers with no units ie 1.75 and 1750 scores 2 marks only (B1M1) 1750 m with 1.75 km on the answer line scores full marks
Total 3 marks				

12	12 420 ÷ 54(=230) or 232 × 54 (=12 528)		3	M1	
	232 – “230” (=2) or “12 528” – 12 420(=108)			M1	
	Correct answer scores full marks (unless from obvious incorrect working)	2 (Aus)dollars or 108 rupees		A1 Answer must have correct units which may be shortened eg \$ or r (allow incorrect spelling if meaning is clear)	
				Total 3 marks	
13		JW, JY, BW, BY, HW, HY, SW, SY	2	B2 B2 all correct combinations with no repeats and no incorrect combinations (B1 for at least 4 correct combinations ignoring repeats or incorrect combinations)	
				Total 2 marks	
14	(a)		rotation	2	B1 oe with no mention of reflection, translation, enlargement, move, flip etc
			180° (or half turn) about (0, 0) or O or ‘the origin’		B1 (SC B2 for “enlargement centre origin SF – 1”) (ignore any reference to clockwise/anticlockwise)
	(b)	(2, –3) (2, –5) (5, –3) (5, –4)	A correct shape	2	B2 (B1 for a ‘correct’ shape reflected in any horizontal line or a correct reflection in the line $x = -1$ or for shape B reflected in $y = -1$)
					Total 4 marks



5	5×1000 or 5000 or $280 \div 1000$ or 0.28	M2 for		3	M1 for a correct conversion between ml and litres
	eg $5000 \div 280$ or $5 \div 0.28$ or $17.8\ldots$ or $\frac{125}{7}$ or $17\frac{6}{7}$ oe	17×280 or 4760 or 17×0.28 oe or 4.76 oe			M1 for a complete method ft incorrect conversion but an attempt must have been made to convert
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>		17		A1
					Total 3 marks

6	(a)		11.56	1	B1 oe eg $\frac{289}{25}$ or $11\frac{14}{25}$
	(b)		72	1	B1
	(c)		7^4	1	B1
	(d)(i)		$(5 + 3) \times 2 = 16$	1	B1
	(ii)		$10 - 8 - (10 - 6) \div 2 = 0$	1	B1
					Total 5 marks

8	eg 5×2.60 or 13 or $50 - 5 \times 2.60$ or 37 or 4×3.94 or 15.76 oe or $50 - 4 \times 3.94$ or 34.24 oe or $5 \times 2.60 + 4 \times 3.94 (= 28.76)$ oe		3	M1 for method to find the cost of the nails or the bolts or the nails and bolts
	eg $50 - (5 \times 2.60) - (4 \times 3.94)$ oe or $50 - "13" - "15.76"$ oe or $50 - "28.76"$ oe			M1 ft for a complete method
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	21.24		A1
				Total 3 marks

4	(a)		5	1	B1
	(b)	$3 \times 100 (= 300)$ or $3 - 0.85 (= 2.15)$ or digits 300 – 85 or 85 – digits 300		2	M1 for conversion to centimetres or a method to work out the difference in metres or a method to find the difference in centimetres using their converted 300 For digits 300, allow 30, 300, 3000, 0.3, 0.03 and so on, but NOT 3
		Correct answer scores full marks (unless from obvious incorrect working)	215		A1 allow –215
					Total 3 marks
5	(a)		5a	1	B1
	(b)		7bc	1	B1 oe eg 7cb
	(c)		8	1	B1
					Total 3 marks
6	(a)		25	1	B1 cao
	(b)		–23	1	B1 cao
					Total 2 marks

8	(a)		$11m - 3k$	2	B2 If not B2 then award B1 for either $11m$ or $-3k$
	(b)	$2 \times 5 + 3 \times 8$ or $10 + 24$		2	M1 for substituting the values of a and b into P
			34		A1
	(c)	$16 = 2a + 3 \times 20$ or $16 = 2a + 60$	$P - 3b = 2a$	3	M1 for substituting the values of P and b into the equation or rearranging the equation $P = 2a + 3b$ for $2a$ correctly
		$16 - 60 = 2a$ $-44 = 2a$ or	$16 - 2 \times 30 = 2a$ or $16 - 60 = 2a$		M1 for rearranging the equation for $2a$ correctly or substituting the values of P and b into the correctly rearranged equation
			-22		A1
					Total 7 marks

9		$240 \div 3 (= 80)$ or $240 \div 3 \times 2 (= 160)$		4	M1 for finding the number of large ice creams or small ice creams
		'80' $\times 3.8 (= 304)$			M1 for finding the cost of large ice creams
		$(640 - '304') \div '160'$			M1 for a complete method to find the cost of a small ice cream
			2.1(0)		A1
					Total 4 marks

10	(a)	$16 : 40$ or $8 : 20$ or $4 : 10$		2	M1 for any correct cancelling or $5 : 2$
			$2 : 5$		A1 cao
	(b)		$\frac{5}{12}$	1	B1
					Total 3 marks



11	(a)	$\frac{16}{40} \times 360$ oe or $\left(\frac{16}{40} \times 100\right) \frac{40}{100} \times 360$ oe or $360 \div (40 \div 16)$		2	M1 Allow two stages e.g. $\left(\frac{16}{40} \times 100 \text{ and } \frac{40}{100} \times 360\right)$ oe
			144		A1 cao
	(b)	E.g. $48 \div 192 \times 56$ oe or $\left(\frac{48}{192} \times 100 = 25\right) \frac{25}{100} \times 56$ oe or $(192 \div 48 (= 4) \text{ and } 56 \div 4)$ or $192 \div 56 (= 3.4...) \text{ and } 48 \div 3.4...$		2	M1
			14		A1 cao
Total 4 marks					

12		A: $0.6 \times (2 \times 80) (= 96)$ B: $0.6 \times 80 (= 48)$ C: $0.55 \times 80 (= 44)$ D: $(0.6 - 0.55) \times 80 (= 4)$		4	M2 for two compatible values: AC or BC or BD or $2 \times 60 - 55 (= 65\%)$ If not M2 then award M1 for any one of A or B or C or D
		E.g. '96' – '44' or $48 + (48 - 44)$ or $48 + 4$ or 0.65×80			M1 for a complete method
			52		A1
Total 4 marks					

4	eg $1 \times 6 + 2 \times 3.50 + 4 \times 4.20 (= 29.8(0))$ $40 - 1 \times 6 - 2 \times 3.50 (= 27.(00))$			M1 for working with at least three of hammer, nails, wood, money, gloves
	$40 - (1 \times 6 + 2 \times 3.50 + 4 \times 4.20) (= 10.2(0))$			M1 complete method to find the remaining money
	“10.20” $\div 1.80 (= 5.66\dots)$ or [their remaining money] $\div 1.80$ or $1.80 \times 5 (= 9)$ or $1.80 \times 6 (= 10.8(0))$			M1 (dep on M1) method to find the number of pairs of gloves
		5	4	A1 SC B2 for an answer of 14
Total 4 marks				

5	eg $20 \div 2.5 (= 8)$ or $32 \div 4 (= 8)$ or $20 \div 10 (= 2)$ or $32 \div 16 (= 2)$			M1 for a method to find a key																
		8		A1 key completed correctly																
	eg $24 \div [\text{their } 8]$ or $14 \div [\text{their } 8]$ or $24 \div [\text{their } 2]$ or $14 \div [\text{their } 2]$			M1 complete method to find the picture for Miss Okoye or Dr Syed																
		Miss Okoye <table><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table> Dr Syed <table><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>																	4	A1
				Total 4 marks																

Question	Working	Answer	Mark	Notes
11 (a)		3720	1	B1
(b)		95	1	B1
(c)	$\frac{651}{9.3} \times 4.4$		2	M1
		308		A1
Total 4 marks				
12 (a)		4k	1	B1
(b) (i)		9 ⁴	1	B1
(ii)		3 ⁸	1	B1
(c)		5 ¹⁹	1	B1
(d)			2	M1 A factor tree / division ladder of 3 or more factors ($\neq 1$), multiplying to 800, which must include 2 and 5. Condone 1 error when product $\neq 800$
		2×2×2×2×2×5×5		A1 Dep on M1 oe eg 2 ³ × 5 ²
13	0.4 × 75(= 30) oe		4	M1 M2 for 0.6 × 75(= 45) oe
	75 – 30 (= 45)			M1
	(T-Shirt =) $\frac{45-12}{2}$ or (Bag =) $\frac{45+12}{2}$ oe or $t + (t + 12) = 45$ oe			M1 (T-shirt = \$16.50)
		28.5(0)		A1
Total 4 marks				

7	(a)	e.g. $(8.3 - 3.2) \div 3$		2	M1 for a complete method
			1.7		A1
	(b)	$9.45 \div 7$		2	M1
			1.35		A1
Total 4 marks					

8	(a)		bus	train	plane	total		3	B3 for all 6 entries correct (B2 for 4 or 5 correct entries) (B1 for 2 or 3 correct entries)
		men	12	15	53	80			
		women	17	28	25	70			
		total	29	43	78	150			
	(b)						$\frac{15}{80}$	1	B1 oe e.g. $\frac{3}{16}$, 0.1875, 18.75%
Total 4 marks									

9		$4 \times 4 \times 4 (= 64)$ or $60 \times 48 \times 40 (= 115\,200)$ OR $60 \div 4 (= 15)$, $48 \div 4 (= 12)$, $40 \div 4 (= 10)$ oe “115 200” $\div$ “64” or “15” $\times$ “12” $\times$ “10”		3	M1 for finding the volume of either the cube or carton OR finding the number of cartons that fit along each edge of the box
			1800		M1 for a complete method
					A1
Total 3 marks					



4	$8 + 3 \times 4.50 (= 21.5)$			M1
	$(30 - '21.5') \div 1.1 (= 7.72... \text{ or } 7) \text{ or}$ $8.5 \div 1.1 (= 7.72... \text{ or } 7)$			M1 method to find the number of packets of seeds – could be repeated addition
	$30 - '21.5' - '7' \times 1.1 \text{ or}$ $8.5 - 7.7$			M1 complete method to find the change
		0.8(0)	4	A1
				Total 4 marks

5	a	$(-2, 3)$	1	B1
	b	$(\times) \text{ at } (4, -2)$	1	B1 condone missing label as long as unambiguous
	c	$y = -3$	1	B1 oe
				Total 3 marks

10		$4x + 6x + 11 + 9x - 18 = 126$ oe eg $19x - 7 = 126$ or eg $(126 + 18 - 11) \div 19$		4	M1 A correct equation or a correct calculation for x
		$x = 7$			A1
		$0.5 \times (9 \times "7" - 18) \times (4 \times "7")$ ($0.5 \times 45 \times 28$)			M1 Dep on M1
			630		A1 cao
					Total 4 marks
11		$ABD = 180 - 143 (= 37)$ or $AEJ = 76$ or $CED = 76$ or $ECD = 180 - 143 (= 37)$		3	M1 may be marked on diagram
		$180 - 76 - "37"$			M1 A correct calculation for EDC
			67		A1
					Total 3 marks
12		$438 \times 0.12 (= 52.56)$ or $44.39 \div 0.92 (= 48.25)$		4	M1
		$438 \times 0.12 (= 52.56)$ and $44.39 \div 0.92 (= 48.25)$ or $438 \times 0.12 (= 52.56)$ and $"52.56" \times 0.92 (= 48.355)$ or $44.39 \div 0.92 (= 48.25)$ and $"48.25" \div 0.12 (= 402.083...)$			M1
		$"52.56" - "48.25"$ or $"48.355" - 44.39 = 3.965$ and $"3.965" \div 0.92$ or $438 - "402.083..." (= 35.916...)$ and $"35.916" \times 0.12$			M1 Dep on M2
			4.31		A1
					Total 4 marks



7	(a)		D	1	B1
	(b)		4 hours 52 minutes	2	B1 B1
	(c)	time = $40 + 45$ (= 85 minutes oe) or 1 hr 25 min		3	M1 accept $60 + 25$ May be implied by $70 \div 40$
		$(\text{"85"} - 15) \div 40$			M1 dep 1st M1
			1.75		A1 oe eg 1.750 or $\frac{7}{4}$
	(d)		$T = 40k + 15$	2	B2 B1 for $40k + 15$ or $T = 40k + a$ ($a \neq 15$) Accept $40 \times k$ etc
Total 8 marks					

8	(Berlin) $120 \div 1.16$ (= 103.45)		4	M1
	(Dubai) $600 \times 0.24 \div 1.16$ (= 124.14) oe or $144 \div 1.16$			M1
	“124.14” – “103.45”			M1 dep on M2 Accept “103.45” – “124.14” or rounded/truncated values
		20.69		A1 allow 20.68 to 20.7(0)
				Total 4 marks

Alternative Mark Scheme for Q8					
8	(Dubai =) 600×0.24 (=144)		4	M1	
	"144" – 120 = 24			M1	
	"24" ÷ 1.16			M1	dep on M2 for a fully correct method
		20.69		A1	allow 20.68 to 20.7(0)

Question	Working	Answer	Mark	Notes
3 (a)		Wednesday	1	B1 Accept Wed
(b)		55	1	B1
(c)		Correct Bars	1	B1 Susan 1.5 cm, Philip 4 cm (and having the correct key)
(d)	$\frac{25}{100} \times 180$ or 0.25×180 or $180 \div 4$ oe		2	M1
		45		A1
Total 5 marks				
4 (a)		Chicago	1	B1 Accept misspellings
(b)		16	1	B1 accept -16
(c)	$-1 + 2 \times 3$		2	M1 for clearly adding 3 lots of 2 or the sequence - 1, 1, 3, 5
		5		A1
Total 4 marks				
5 (a)	800×1.75		2	M1
		1400		A1
(b)	$60 - (98 \div 1.75)$ oe	$60 \times 1.75 - 98 (= 7)$ and $7 \div 1.75$	2	M1 accept $(98 \div 1.75) - 60$
		4		A1 accept - 4
Total 4 marks				

3		$7x$	1	B1	cao
		$28p$	1	B1	cao
Total 2 marks					

4	(a)		548	1	B1	cao
	(b)		4.6	1	B1	allow 4.6000....
	(c)	$(32 - 5) \div 2$		2	M1	
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	13.5		A1	oe
						Total 4 marks

5	(a)		15	1	B1	cao
	(b)	19 – 13		2	M1	19 and 13 selected or $a - b$ where $a = 19$ or $b = 13$
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	6		A1	cao
						Total 3 marks

6	(a)		20	1	B1	cao
	(b)		add 4	1	B1	oe 4 times table or $4n$ or goes up in 4's, allow 'the gap is +4' but not 'the gap is 4'
	(c)		$4n$	1	B1	$4n + 0$ not $n = 4 \times n$
						Total 3 marks

7	$(465 - 400) \times 0.10 (= 6.5)$ or $65 \times 0.10 (= 6.5)$		4	M1
	$(1740 - 1500) \times 0.05 (= 12)$ or $240 \times 0.05 (= 12)$			M1
	$20.75 + '6.5' + '12'$			M1
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	39.25		A1 cao
				Total 4 marks

8	$(360 - 122 - 122) \div 2$ or $180 - 122$		3	M1
		58		A1 for 58°
		58 and correct reason		B1 dep on M1 for a reason for their method used allied or co-interior angles add up to 180° or corresponding angles are equal (angles on a straight line add up to 180°) or opposite angles in a rhombus are equal or angles of a rhombus/quadrilateral add up to 360°
				Total 3 marks

5	eg 3×2.45 (= 7.35) or $2 \times 6.2(0)$ (= 12.4(0)) or $3 \times 2.45 + 2 \times 6.2(0)$ (= 19.75)		4	M1 for working out the cost of the seeds or the compost or the seeds and the compost
	eg $34.35 - "7.35" - "12.40"$ (= 14.6(0)) or $34.35 - "19.75"$ (= 14.6(0))			M1 for working out the cost of the 4 plant pots
	"14.60" $\div$ 4			M1 for a complete method to find the cost of one plant pot
		3.65		A1 If no other marks awarded, SCB2 for answer of 6.42 – 6.43 SCB1 for 25.7(0)
				Total 4 marks

7	$6 \times 220 (= 1320)$ or $220 + 220 + 220 + 220 + 220 + 220 (= 1320)$ oe		4	M1 Allow a correct build-up method
	$5000 - "1320" (= 3680)$ or $5000 - ("220 + 220 + 220 + 220 + 220 + 220") (= 3680)$ oe or $5000 - 140 (= 4860)$ or $5000 - ("1320" + \text{some multiples of } 295)$ oe			M1 Allow a correct build-up method
	$("4860" - "1320") \div 295$ or $"3540" \div 295$ or $("3680" - 140) \div 295$			M1 Allow a correct build-up method
		12		M1 A1 for $3680 \div 295$ $(= 12.4(745..))$ and 12
				Total 4 marks

8	(a)		$7g - 2e$	2	B2 or $-2e + 7g$ If not B2 then award B1 for $7g$ or $-2e$
	(b)	$3 \times 12 (= 36)$ and $5 \times 4 (= 20)$		2	M1
			16		A1 SC B1 for an answer of 56 or -16
	(c)	$4p = 24 - 9$ or $4p = 15$ or $p + \frac{9}{4} = \frac{24}{4}$ oe or $(24 - 9) \div 4$ or $15 \div 4$		2	M1 for a correct first step or for a calculation for p
			$\frac{15}{4}$		A1 oe e.g. 3.75 or $3\frac{3}{4}$
					Total 6 marks

9	(a)		a^5	1	B1
	(b)		$24bc$	1	B1 oe
	(c)		$3x + 12$	1	B1 or $12 + 3x$
	(d)	e.g. $5 \times \left(\frac{1}{2}\right)^2 - \frac{1}{4}$ or $5 \times (0.5)^2 - 0.25$ oe or $5 \times \frac{1}{4} - \frac{1}{4}$ oe or $5 \times 0.25 - 0.25$ oe		2	M1 for substituting values for v and w
			1		A1 oe e.g. $\frac{4}{4}$
Total 5 marks					

10	6 hrs 40 mins or $6\frac{2}{3}$ or $\frac{20}{3}$ or 400 mins		4	B1
	e.g. $(6 \times 60 + 40) \times 60 (= 24\,000)$ oe or "their 400" $\times 60 (= 24\,000)$ oe or $\frac{60}{8} (= 7.5)$ oe or $\frac{60 \times 60}{8} (= 450)$ oe or $7.5 \times 60 (= 450)$ oe			M1 for converting their time difference into seconds or finding the number of bolts produced in 1 minute oe or finding the number of bolts produced in one hour oe
	e.g. "24 000" $\div 8$ oe or "their 400" $\times$ "7.5" oe or "their $6\frac{2}{3}$ " $\times$ "450" oe			M1 for a complete method to find how many bolts are produced
		3000		A1
Total 4 marks				

2	$5 \times 1000 (= 5000)$ or $350 \div 1000 (= 0.35)$		4	M1
	“5000” $\div 350 (= 14.2857\dots)$ or $5 \div “0.35” (= 14.2857\dots)$ or 14			M1 Allow their 5000 or their 0.35
	$350 \times “14”$ or 4900 or $0.35 \times “14”$ or “0.49” or $(14.28(57\dots) - 14) \times 100$			M1
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	100 g or 0.1 kg		A1
				Total 4 marks

2 ALT	$5 \times 1000 (= 5000)$ or $350 \div 1000 (= 0.35)$		4	M1
	350, 700, 1050, ..., 4900 or 0.35, 0.7, 1.05, ..., 4.9			M1 for repeated addition to at least 4900 or 4.9 (allow one error) or for repeated subtraction to at least 100 or 0.1 (allow one error)
	350, 700, 1050, ..., 4900 or 0.35, 0.7, 1.05, ..., 4.9			M1 for repeated addition to 4900 or 4.9 (no errors) or clearly indicated e.g. at the end of their list, circled, underlined etc or for repeated subtraction to 100 or 0.1 (no errors) clearly indicated e.g. at the end of their list, circled, underlined etc
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	100 g or 0.1 kg		A1
				Total 4 marks



6	$\frac{1}{4} \times 600 (= 150)$ oe or $\frac{3}{4} \times 600 (= 450)$ oe		4	M1
	"450" $\times$ 13.60 (= 6120)			M1
	(7200 – "6120") $\div$ "150" or 1080 $\div$ "150"			M1
	Correct answer scores full marks (unless from obvious incorrect working)	7.2(0)		A1 SC B2 for 11.46(666...)
				Total 4 marks

7	(a)	45pk	1	B1 accept 45kp
	(b)	11e – 5f	2	B2 for 11e – 5f (B1 for 11e or –5f)
	(c)	$2d = 16 - 7$ or $2d = 9$ or $d + \frac{7}{2} = \frac{16}{2}$ oe or (16 – 7) $\div$ 2 or 9 $\div$ 2	2	M1
	Correct answer scores full marks (unless from obvious incorrect working)	4.5		A1 accept $\frac{9}{2}$ or $4\frac{1}{2}$
				Total 5 marks

4	(a)		(1, 0)	1	B1
	(b)		Cross marked at (3, -2)	1	B1
	(c)		(-3, -1)	2	B2 for (-3, -1) If not B2 then award B1 for (-3, a) where $a \neq -1$ or (b, -1) where $b \neq -3$ or (-1, -3)
	(d)		$y = 3$	1	B1
					Total 5 marks

5	eg 2.5 kg = 2500 g or 400 g = 0.4 kg or 350 g = 0.35 kg		4	B1	for a correct conversion between g and kg
	eg 400 + 350 (= 750) or 0.4 + 0.35 (= 0.75) or 400 × 2 (= 800) or 0.4 × 2 (= 0.8)			M1	for method to find the weight of parcel B or C ft incorrect conversion
	eg 2500 – (400 + “750” + “800”) or 2.5 – (0.4 + “0.75” + “0.8”) (= 0.55)			M1	for a complete method ft incorrect conversion
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	550		A1	
				Total 4 marks	

8		DL, DP, DR, HL, HP, HR, JL, JP, JR, SL, SP, SR	2	B2 for all 12 combinations with no extras or repeats If not B2 then B1 for at least 4 correct combinations (ignoring extras and repeats)
				Total 2 marks
9	(a)		20 30	1 B1 allow eg 20.30 or 20:30
	(b)	eg 10:50am + 45mins = 11:35am or 10:50am + 1hr10mins = 12:00pm or 2:20pm - 45mins = 1:35pm or 2:20pm - 1hr10mins = 1:10pm or 45mins + 1hr10mins = 1hr55mins or 115mins or 10:50am to 2:20pm = 3hr30mins or 210mins		3 M1 for correctly working with two times condone missing am or pm
		eg 10:50am + 45mins + 1hr10mins = 12:45pm or 10:50am + 1hr55mins = 12:45pm or 2:20pm - 45mins - 1hr10mins = 12:25pm or 2:20pm - 1hr55mins = 12:25pm		M1ft for getting to a time one step from the answer or 1hr35mins or a correct ft from a previous error condone missing am or pm
		Correct answer scores full marks (unless from obvious incorrect working)	95	A1
				Total 4 marks

10	(a)	eg 500×1.18		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	590		A1
	(b)	eg $350 \div 1.40$		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	250		A1
					Total 4 marks

11	eg $\frac{1}{4} \times 200 (= 50)$ or $\frac{2}{5} \times 200 (= 80)$ OR $\frac{43}{200}$		4	M1	for a method to find the beads for Bernadette or Claudio OR Derek's beads as a fraction
	eg $\frac{1}{4} \times 200 (= 50)$ and $\frac{2}{5} \times 200 (= 80)$ OR $\frac{43}{200} + \frac{1}{4} + \frac{2}{5} \left(= \frac{173}{200} \right)$			M1	for a method to find the beads for Bernadette and Claudio OR method to find the fraction of the 200 beads given away
	eg $200 - "50" - "80" - 43 (= 27)$ OR $1 - \frac{173}{200}$			M1	for a method to find the number of beads Asif has left OR $1 -$ the fraction of the 200 beads given away
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	$\frac{27}{200}$		A1	cao

9	(a)		146	1	B1
	(b)	$64 - 9 (= 55)$ or $(64 - 9) \div 11$ or $11x + 9 = 64$		2	M1 for working backwards from the output of 64 or setting up an equation
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	5		A1
Total 3 marks					

10	(a)		$\frac{13}{30}$	1	B1 oe eg 0.43(333...) or 43.(33...)%
	(b)		$\frac{6}{30}$	1	B1 oe eg $\frac{1}{5}$ or $\frac{3}{15}$ or 0.2 or 20%
	(c)	eg $\frac{2}{5} = \frac{16}{40}$ or $\frac{2}{5} \times (10 + 30)(= 16)$ oe		2	M1 for a method to work out the number of white counters now in the bag
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	5		A1
Total 4 marks					

11	$94.8(0) - 3 \times 12 (= 58.8(0))$ oe		4	M1 for a method to find the total cost of the children's tickets
	eg $0.3 \times 12 (= 3.6(0))$ oe or $(1 - 0.3) \times 12 (= 8.4(0))$ oe			M1 (indep) for finding 30% or 70% of 12
	"58.8(0)" $\div (12 - "3.6(0)")$ oe or "58.8(0)" $\div "8.4(0)"$ oe			M1 for a complete method to find the number of children's tickets
	Correct answer scores full marks (unless from obvious incorrect working)	7		A1
Total 4 marks				

5	(a)		Correct explanation	1	B1 eg 'she added 4', 'add 4', '+4, rule is $4n - 2$, goes up by 4, $4 \times 5 - 2 (= 18)$
	(b)	Acceptable answers 1. (the) sequence is even 2. (217) is odd or not even 3. 'nth term is $4n - 2$ which will always be even' 4. 'sequence goes 214, 218' 5. (the) 54 th term is 214 6. it would be 218 (not 217) 7. $4n - 2$ so n is not an integer/whole number 8. $219 \div 4$ oe ($= 54.75$) not an integer/whole number 9. not 2 less than a multiple of 4 10. does not end with 0, 2, 4, 6 and 8 (must have all 5 numbers) 11. each digit has an even digit at the end/does not end in an even number Not acceptable answers 1. adding 4 each time will not lead to 217 2. it goes past 217 3. $217 \div 4 (= 54.25)$ not an integer/whole number	Correct explanation	1	B1
					Total 2 marks

6	eg $9.25 \times 1000 (= 9250)$ or $750 \div 1000 (= 0.75)$		4	M1 for a correct conversion	M2 for 750×13 (= 9750)
	eg “9250” $\div 750 (= 12.333\dots)$ or 13 or $9.25 \div “0.75” (= 12.333\dots)$ or 13 or $750 \times 12 (= 9000)$ or $0.75 \times 12 (= 9)$ or eg 750, 1500, 2250, ..., 9000 or 0.75, 1.5, 2.25, ..., 9 or 9250, 8500, 7750, ..., 250 or 9.25, 8.5, 7.75, ..., 0.25			M1 for a method to calculate the number of bags required. Ft incorrect conversion or for repeated addition to at least 9000 or 9 (allow one error) or for repeated subtraction to at least 250 or 0.25 (allow one error)	
	eg “13” $\times 58$			M1 for a complete method. Ft incorrect conversion – an attempt must have been made at a conversion to gain this mark. “13” must come from a number that is rounded up or ft subtraction/addition method to find the number of bags allowing only one error “13” must come from a number that is rounded up	
	Correct answer scores full marks (unless from obvious incorrect working)	754		A1 cao SCB1 for $9.25 \div 750 (= 0.123(333\dots))$	
Total 4 marks					

10	(a)	$6 \times 2.2(0) (= 13.2(0))$ oe		2	M1 May be continued addition
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	6.8(0)		A1
	(b)	$50 \div 0.85 (= 58.82\dots)$ or $58 \times 0.85 (= 49.3(0))$		2	M1 Allow continued addition if clearly adding at least 58 lots of 0.85 (allow one arithmetic error)
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	58		A1 SCB1 if no other marks scored for 59 or 58.8...
					Total 4 marks

5	(a)		$\frac{2}{3}$	1	B1 allow 0.67 or better
	(b)		$\frac{4}{5}$ and $\frac{12}{15}$	1	B1
	(c)		0.7	1	B1 allow 0.7(000...)
Total 3 marks					

6	(a)		8	1	B1 cao
	(b)	40 – (“8” + 14 + 11) oe or 40 – 33 or or 18 – 11 or 21 – 14 or 15 – “8”		3	M1 for 40 minus their 3 readings (allow one incorrect reading from 8 or 14 or 11)
		7			A1(ft for 15 – “8” or 40 – (“8” + 14 + 11))
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	Correct height of bar		A1 ft dep on M1 ± half square tolerance for height of bar Award 3 marks for a fully correct bar of height of 7
Total 4 marks					

7	$1620 \times 0.9(0) (= 1458)$		4	M1
	$1620 \div 1.08 (= 1500)$			M1
	“1500” – “1458”			M1
	Correct answer scores full marks (unless from obvious incorrect working)	42		A1
				SC B1 for $1620 \div 0.9 (= 1800)$ and $1620 \times 1.08 (= 1749.6(0))$ or for “1800” – “1749.6(0)” (= 50.4(0))
Total 4 marks				

8	(a)	$3 \times 25 + 30 + 42$ or $75 + 30 + 42$		2	M1
		Correct answer scores full marks (unless from obvious incorrect working)	147		A1
	(b)	$220 - 65 - 30 (= 125)$ or $220 - 95 (= 125)$		3	M1
		“125” $\div 25$ or $5 \times 25 (= 125)$			M1
		Correct answer scores full marks (unless from obvious incorrect working)	5		A1
Total 5 marks					

9	(a)		60	1	B1 cao
	(b)(i)		58	1	B1
	(ii)		correct reason	1	B1 for <u>angles</u> in a <u>triangle</u> add up to 180° or for angles in a <u>triangle</u> add up to 180°
Total 3 marks					

6	$2 \times 145.5 (= 291)$ or $3 \times 110 (= 330)$		4	M1
	$(1000 - ("291" + "330")) (= 379)$ oe or $1000 - 621 (= 379)$ oe			M1
	$"379" \div 30 (= 12(.633...))$ oe or $30 + 60 + 90 + 120 + 150 + 180 + 210 + 240 + 270 + 300 + 330 + 360 (+ 390)$ or 349, 319, 289, 259, 229, 199, 169, 139, 109, 79, 49, 19, (-11) oe or $30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 + 30 (+ 30)$ oe or $"379" - 30 - 30 - 30 - 30 - 30 - 30 - 30 - 30 - 30 - 30$ $- 30 - 30 (- 30)$ oe or 360			M1 Allow 12 or 13 subtractions of 30 from "379" (condone one error) oe Allow 12 or 13 additions of 30 giving 360 or 390 (condone one error) oe
		19		A1
				Total 4 marks

Question	Working	Answer	Mark	Notes
7 (a)		16 30	1	B1 oe allow 16.30 or 16,30 or 16:30 allow 16:30pm
(b)	1 hour 5 mins (allow 1.05 but not 105) or 15 + 50 (= 65) min for time from <i>B</i> to <i>C</i> or for 10 + 36 (= 46) oe for time from <i>C</i> to <i>P</i>		3	M1
	“ <i>B</i> to <i>C</i> ” – “ <i>C</i> to <i>P</i> ” eg “65” – “46” eg “1 hr 5 mins” – “46 mins”			M1ft dep on M1 awarded and “65” greater than “46”
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	19		A1 cao NB: 19 from 1.05 – 0.86 or 105 – 86 scores 0 marks
				Total 4 marks

7	$35 \times 14 (= 490)$		4	M1
	$679 - "490" (= 189)$	M2 for		M1
	$"189" \div 21$	$(679 -) 9 \times 21$ oe or $(490 +) 9 \times 21$ oe		M1
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>		9	A1
				Total 4 marks

8	(a)		$4x - 3y$	2	B2 Accept $-3y + 4x$ (If not B2 then award B1 for $4x$ or $-3y$)
	(b)	4×13 and $\pm 6 \times 7$ or 52 and ± 42		2	M1
		<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	10		A1 SC B1 for -50
	(c)	$5p = 28 - 11$ or $11 - 28 = -5p$ or $5p = 17$ or $p + \frac{11}{5} = \frac{28}{5}$ or $(28 - 11) \div 5$ oe		2	M1
		<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	$\frac{17}{5}$		A1 oe e.g. 3.4 or $3\frac{2}{5}$
					Total 6 marks



8	eg $3 \times 1.8(0)$ (= 5.4(0)) or $4 \times 1.2(0)$ (= 4.8(0)) or $3 \times 1.8(0) + 4 \times 1.2(0)$ (= 10.2(0))		4	M1 for a method to find the cost of the birthday cards or the wrapping paper or the total cost of the birthday cards and the wrapping paper
	eg $17.1(0) - ("5.4(0)" + "4.8(0)")$ (= 6.9(0)) or $17.1(0) - "10.2(0)"$ (= 6.9(0))			M1 for a method to find the cost of 2 rolls of sticky tape
	eg $"6.9(0)" \div 2$			M1 for a complete method
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	3.45		A1 if no other marks awarded, award SCB2 for an answer of 7.05 SCB1 for 14.1(0)
Total 4 marks				

9	(a)	(-4, 2)	1	B1 cao
	(b)	(-1, 3)	2	B2 (B1 for (-1, y) or (x, 3) or (3, -1) or the midpoint of AB unambiguously shown on diagram)
	(c)	(-3, -1)	2	B2 (B1 for (-3, y) or (x, -1) or (-1, -3) or D marked correctly on the diagram)
Total 5 marks				



8	BC: eg 3 for 8.40, 6 for 16.80, etc (at least 2 multiples of 8.40 with number of tins bought) or (pay for) $\frac{2}{3} \times 30 (= 20)$ or $\frac{2}{3} \times 4.20 (= 2.80)$ or $\frac{2}{3} \times 30 \times 4.20 (= 84)$ oe AS: eg $0.25 \times 18 (= 4.5)$ or $0.75 \times 18 (= 13.5)$ or $\frac{18}{5} \times 0.75 (= 2.70)$ or $\frac{30}{5} \times 18 \times 0.75 (= 81)$ oe		4	M1 For working with Bargain Crafts 3 for 2 offer or working with 25% off offer for Art's Store
	(BC =) 84 or (AS =) 81			A1 For one correct amount
	"84" – "81" (both values must come from correct working)			M1 A fully correct method to find the difference.
	Correct answer scores full marks (unless from obvious incorrect working)	3		A1 allow –3
				Total 4 marks

5	(a)		$11d$	1	B1
	(b)		$10pm$	1	B1 or $10mp$
	(c)		-24	1	B1 cao
	(d)		48	1	B1cao
	(e)		a^4	1	B1 cao
	(f)	9×8 or 72 and $\pm 4 \times 12$ or ± 48		2	M1
	Correct answer scores full marks (unless from obvious incorrect working)		24		A1 cao SC B1 for 76
					Total 7 marks

6	2358×0.28 (= 660.24)	2358×0.28 (= 660.24)	$2358 \div 12$ (= 196.5)	$2358 \div 12$ (= 196.5)	$42 \div 0.28$ (= 150)	42×12 (= 504)		4	M1
	42×12 (= 504)	$660.24 \div 12$ (= 55.02)	$"196.5" \times 0.28$ (= 55.02)	$42 \div 0.28$ (= 150)	$"150" \times 12$ (= 1800)	$"504" \div 0.28$ (= 1800)			M1
	$"660.24" - "504"$ or $("55.02" - 42) \times 12$ oe or $("196.5" - "150") \times 12 \times 0.28$ oe or $(2358 - "1800") \times 0.28$ oe								M1
	Correct answer scores full marks (unless from obvious incorrect working)						156.24		A1
									Total 4 marks

6	250 ÷ 14 (= 17.85....) or 17 or 18 or 14 + 14 + 14 (seventeen or eighteen times) oe		3	M1
	17 × 14 (= 238)			M1 This mark assumes previous M1
	Correct answer scores full marks (unless from obvious incorrect working)	12		A1
				Total 3 marks

7	3.5 km = 3500 m or 950 m = 0.95 km or 1.8 km = 1800 m or 1200 m = 1.2 km or 8 km = 8000 m		4	B1 for one correct conversion
	3.5 + "0.95" + 1.8 + "1.2" (= 7.45) or "3500" + 950 + "1800" + 1200 (= 7450)			M1 can gain this mark for adding their converted figures even if incorrect but some attempt must have been made to convert 2 relevant values. (eg incorrect but 350 + 950 + 180 + 1200)
	8 – "7.45" (= 0.55) or 8000 – "7450"			M1 ft Correct compatible units ft their total dep on Marion's distance being less than Talha's
	Correct answer scores full marks (unless from obvious incorrect working)	550		A1
Total 4 marks				



12	(a)		3 (hours) 25 (minutes)	2	B2 for 3 (hours) and 25 (minutes) (B1 for 3 (hours) or 25 (minutes))
	(b)	$48 \div 120 (= 0.4)$ or $48 \div 120 \times 100$ oe $\frac{48}{120}$ oe eg $\frac{2}{5}$ or $\frac{48}{120} \times 100$ oe or $(120 - 48) \div 120 \times 100 (= 60)$ oe		2	M1 for a correct first step
		Correct answer scores full marks (unless from obvious incorrect working)	40		A1 cao
					Total 4 marks

13	eg $\frac{12}{28}$ and $\frac{7}{28}$ or $\frac{12n}{28n}$ and $\frac{7n}{28n}$ or $4 \times 3 (= 12)$ and $(1 \times) 7$ and $4 \times 7 (= 28)$ or $\frac{3 \times 4}{4 \times 7}$ and $\frac{(1 \times) 7}{4 \times 7}$		2	M1 for finding a common denominator with at least one fraction correct or for calculations that would lead to 12 and 7 and 28
	$\frac{12}{28} + \frac{7}{28} = \frac{19}{28}$ or $\frac{12n}{28n} + \frac{7n}{28n} = \frac{19n}{28n} = \frac{19}{28}$ or $12 + 7 = 19$ and $\frac{19}{28}$ or $4 \times 3 + (1 \times) 7 (= 19)$ and $4 \times 7 (= 28)$ and $\frac{19}{28}$ or $\frac{3 \times 4 + (1 \times) 7}{4 \times 7} = \frac{19}{28}$ or $\frac{3 \times 4}{4 \times 7} + \frac{(1 \times) 7}{4 \times 7} = \frac{19}{28}$ <i>Working required</i>	Shown		A1 dep on M1, for a complete correct method leading to $\frac{19}{28}$
				Total 2 marks

Question	Working	Answer	Mark	Notes
9*	(2 litres =) 2000 (millilitres) or (180 millilitres =) 0.18 (litres)		4	B1 Can be implied from correct working
	eg $2000 \div 180$ oe or $2 \div 0.18$ oe or $11(.111\dots)$ or $\frac{100}{9}$ or $11\frac{1}{9}$ or 180, 360, 540, 720, ... 1800, 1980 or 2000, 1820, 1640, 1460 200, 20			M1 ft their millilitres $\div 180$ or 2 $\div$ their litres for this mark NB Repeated subtraction must continue to a number less than 180 eg $200 \div 180$ or $200 - 180$ gains this mark only eg $500 \div 180$ or $500 - 180 - 180$ gains this mark only eg $2 \div 1.8$ or $2 - 1.8$ gains this mark only Allow one arithmetic error for repeated addition or repeated subtraction for this mark
	11 $\times$ 180 (= 1980) or 11 $\times$ 0.18 (= 1.98) or 180, 360, 540, 720, ... 1800, 1980 or 2000, 1820, 1640, 1460 200, 20			M1 dep on B1 or for an answer of 0.02 No errors allowed for repeated addition or repeated subtraction for this mark
	Working not required, so correct answer scores full marks (unless from obvious incorrect working)	20		A1
				Total 4 marks

7	$\frac{1}{5} \times 80 (=16)$ or $\left(1 - \frac{1}{5}\right) \times 80 (=64)$ oe		4	M1	for a method to find the number of large burgers or the number of small burgers
	"16" $\times 3$ (= 48)			M1	for a method to find the total cost of the large burgers
	$176 - "48" (=128)$			M1	for a method to find the total cost of the small burgers
	Correct answer scores full marks (unless from obvious incorrect working)	2		A1	
					Total 4 marks

8	$150 \div 2 (= 75)$ or $5 \times 7 (= 35)$ or $(150 + 5 \times 2) \div 2 (= 80)$		3	M1	for a method to find the cost of the room without tax for 1 night or for a method to find the total cost of the tax for 7 nights or for a method to find the total cost of the room and the tax for 1 night
	$7 \times "75" + "35" (= 525 + 35)$ or $("75" + 5) \times 7$ or $"80" \times 7$			M1	for a complete method to find the total cost of the room and the tax for 7 nights
	Correct answer scores full marks (unless from obvious incorrect working)	560		A1	
					Total 3 marks



Question	Working	Answer	Mark	Notes
3 i		(triangular) prism	1	B1
ii		5	1	B1
iii		6	1	B1
4 a		6.5	1	B1
b		8000	1	B1
c	$6 \times 1000 (=6000)$ or $475 \div 1000 (=0.475)$ $6 \times 1000 \div 475$ or $6 \div (475 \div 1000)$ or $12.6(3\dots)$ or $475 \times 12 (=5700)$ or $475 \times 13 (=6175)$	12	3	M1 M1 or for repeated subtraction of 475 from 6000 or repeated addition of 475 (may work in grams or kg) A1 cao SC : B2 for an answer of 13
5 a		11x	1	B1
b		20ef	1	B1
c		3	1	B1
d		17	1	B1
e		$7t + 6d$	2	B2 B1 for $7t$ or $(+)$ $6d$

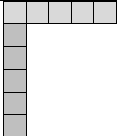
3	(a) (i)		kilometres	1	B1 Accept km or kms
	(ii)		litres	1	B1
	(iii)		square cm	1	B1 Accept sq cm, square centimetres, cm ² etc.
	(b)		1.8 → 2.2 metres	2	B2 B2 for 1800 → 2200 mm or 180 → 220 cm or 1.8 → 2.2 m If not B2, then B1 for metres, centimetres or millimetres
					Total 5 marks
4	(a) (i)		Sphere	1	B1
	(a) (ii)		Cone	1	B1
	(a) (iii)		Prism	1	B1 Accept hexagon prism or hexagonal prism
	(b) (i)		8	1	B1
	(ii)		12	1	B1
	(c)	54 ÷ (9 × 2)		2	M1
			3		A1

Question	Working	Answer	Mark	Notes
6 (a)		21 30	1	B1
(b)		9 hours 20 minutes		B2 If not B2 then award B1 for hours 20 mins or 9 hours mins or a duration equivalent to 9hr 20 min eg. 560 mins
(c)	$\frac{327}{5.5}$ oe or $\frac{327}{330} \times 60$ oe			M2 for a complete method if not M2 then award M1 for $\frac{327}{5.3}$ oe or 61.6(98113...) or 62 or for $\frac{327}{330}$ or 0.99(0909...) oe
		59	3	A1 for 59 – 59.5

7	(a)	<table><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>1</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>2</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td></tr><tr><td>3</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td></tr></table>		1	2	3	4	5	6	1	1	2	3	4	5	6	2	2	4	6	8	10	12	3	3	6	9	12	15	18	Fully correct table	2	B2 fully correct table (B1 for 4 or 5 or 6 correct entries)
		1	2	3	4	5	6																										
	1	1	2	3	4	5	6																										
	2	2	4	6	8	10	12																										
3	3	6	9	12	15	18																											
(b)								M1 for $\frac{a}{18}$ where $0 < a < 18$ or for $\frac{4}{b}$ where $b > 4$																									
						$\frac{4}{18}$	2	A1 oe accept 0.22(2.....) or 22.(2.....)%																									
(c)		'8' '6' $\frac{8}{18}$, $\frac{6}{18}$ or '8','6' or 0.4(4..), 0.3(3..) or 40%, 30% or better						M1 ft from their complete table for two figures that can be used for comparison, one of which must be correct																									
				Yes oe with reason	2	A1																											
								Total 6 marks																									

8	(a)	$(8 \times 0.58) (= 4.64)$			M1 for a method to work out the cost of 8 pencils
		$23.62 - (8 \times 0.58) (= 18.98)$ or $23.62 - ('4.64') (= 18.98)$			M1 for a method to work out the cost of 13 rulers
			\$1.46	3	A1
	(b)	$15 \div 0.62 (= 24.193....)$ or 24 or 14.88			M1
		$15 - '24' \times 0.62$ or $15 - '14.88'$ or $(24.1(935.....) - 24) \times 0.62$ or $0.193(548...) \times 0.62$			M1 for a complete method
			\$0.12	3	A1

3	(a)(i)		kilometres	1	B1 accept m
	(ii)		grams	1	B1 accept g or grammes
	(iii)		square metres	1	B1 accept m ²
	(b)	$\times 1000 (= 1000)$	$\div 1000 (= 0.03)$	3	M1
		$\div 30 (= 33.3\dots)$	$\div '0.03' (= 33.3\dots)$		M1
			33		A1
					SC B2 for 33.3..... or 34
Total 6 marks					

4	(a)		pattern 4 drawn	1	B1
	(b)		10, 12	1	B1
	(c)	14, 16, 18, 20, 22, 24, 26, 28, 30, 32 or $2 \times 30 + 2$ or $12 + (25 \times 2)$ or $4 + (29 \times 2)$ or 31×2 or uses or states $2n + 2$		2	M1 for adding 2 and continuing to at least pattern 15 (allow one error) or for a correct diagram or any correct method which would lead to 62
			62		A1
	(d)	E.g. n th term is $2n + 2$ oe or gives a counter example e.g. when $n = 1$, $2n$ gives 2 (not 4)	No with reason	1	B1 oe
Total 5 marks					

3	(a)		600	1	B1
	(b)		4.5	1	B1
	(c)	$3 \times 1000 (= 3000)$ or $225 \div 1000 (= 0.225)$		4	M1
		“3000” $\div 225 (= 13.3\dots)$ oe or $3 \div 0.225 (= 13.3\dots)$ oe			M1
		“3000” $- (13 \times 225)$ or $[3 - (13 \times “0.225”)] \times 1000$			M1 for a complete method
			75		A1
					Total 6 marks

4	(a)		14	1	B1													
	(b)		Cruise <table><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> Skiing <table><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> <table><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> <table><tr><td></td></tr></table>														2	B1 correct symbol for Cruise B1 correct symbols for Skiing
	(c)			2	M1 $\frac{7}{a}$ where $a \geq 7$ or $\frac{b}{40}$ where $b \leq 40$													
			$\frac{7}{40}$		A1 oe													
					Total 5 marks													

21	(a)	$18\,000 + 14 \times 1160 (= 34\,240)$ oe or $18\,000 + 16\,240 (= 34\,240)$		4	M1
		"34 240" – 32 000 (= 2240) or $\frac{"34\,240"}{32\,000} (= 1.07)$			M1
		$\frac{"2240"}{32\,000} (\times 100)$ or $\frac{"34\,240"}{32\,000} \times 100 (= 107)$ or "1.07" – 1 (= 0.07)			M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	7		A1
	(b)	e.g. $1 - 0.15 (= 0.85)$ or $100(\%) - 15(\%) (= 85(\%))$		3	M1
		e.g. $39\,865 \div 0.85$ or $39\,865 \div 85 \times 100$ oe			M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	46 900		A1
Total 7 marks					