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

Pythagoras & Trigonometry (G5)

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

16 questions · 43 marks · Mark schemes included

Past papers November 2017 - June 2025 · 4 sub-topics

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HOW TO USE THIS BOOKLET

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

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

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

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

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

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

QUESTION	SOURCE	MARKS	PAGE
G5a PYTHAGORAS' THEOREM		5 Qs · 15 marks	2
1. Q22	GCSE Paper 3F June 2022	2	3
2. Q20	GCSE Paper 2F June 2024	2	4
3. Q26	GCSE Paper 2F June 2025	2	5
4. Q25	GCSE Paper 2F November 2021	4	6
5. Q29	GCSE Paper 3F June 2025	5	7
G5b RIGHT-ANGLED TRIGONOMETRY & EXACT VALUES		11 Qs · 28 marks	8
6. Q30	GCSE Paper 1F June 2022	1	9
7. Q30	GCSE Paper 1F June 2023	1	10
8. Q24	GCSE Paper 2F June 2019	2	11
9. Q25	GCSE Paper 2F November 2020	2	12
10. Q22	GCSE Paper 2F November 2022	2	13
11. Q29	GCSE Paper 2F November 2023	2	14
12. Q24	GCSE Paper 3F November 2024	2	15
13. Q23	GCSE Paper 3F June 2018	3	16
14. Q25	GCSE Paper 3F November 2018	4	17
15. Q26	GCSE Paper 2F November 2021	4	18
16. Q22	GCSE Paper 2F November 2017	5	19
G5c SINE RULE, COSINE RULE & AREA OF A TRIANGLE			
No questions on this sub-topic in the available past papers.			
G5d 3D PYTHAGORAS & TRIGONOMETRY			
No questions on this sub-topic in the available past papers.			



QUESTIONS

16 questions · 43 marks · 2 sub-topics

SUB-TOPIC G5a

PYTHAGORAS' THEOREM

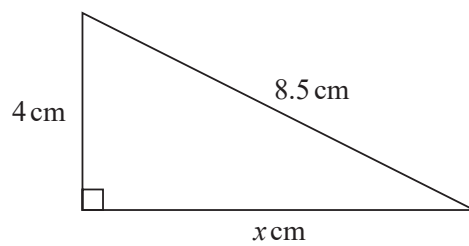
Sub-topic G5a · 5 questions · 15 marks · lowest tariff first



21 Work out the lowest common multiple (LCM) of 24 and 56

.....
(Total for Question 21 is 2 marks)

22 Here is a right-angled triangle.



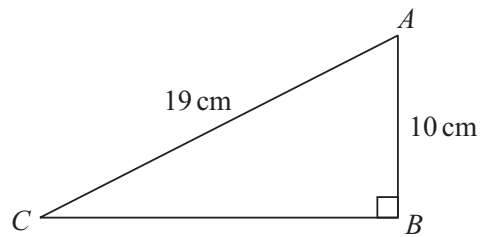
Work out the value of x .

$x =$

(Total for Question 22 is 2 marks)



20 ABC is a right-angled triangle.



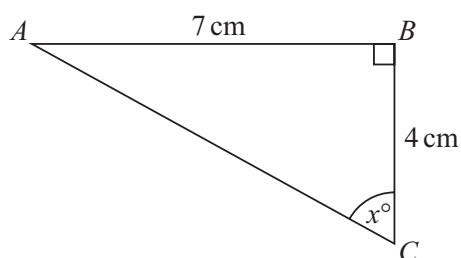
Work out the length of CB .

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 20 is 2 marks)

26 ABC is a right-angled triangle.



Calculate the value of x .

Give your answer correct to 1 decimal place.

$x = \dots\dots\dots$

(Total for Question 26 is 2 marks)

27 Metal rods are made from steel with density 8 g/cm^3
Each metal rod has a volume of 1500 cm^3

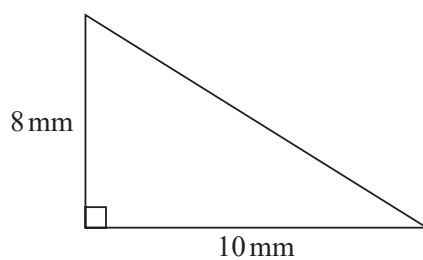
The maximum mass of metal rods that can be put on a trolley is 300 kg .

Work out the greatest number of metal rods that can be put on the trolley.

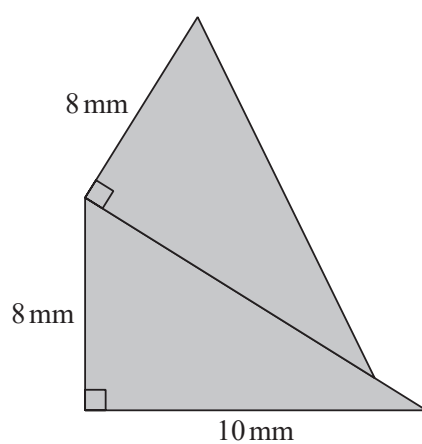
$\dots\dots\dots$
(Total for Question 27 is 3 marks)



25 Here is a right-angled triangle.



The shaded shape below is made from two of these triangles.



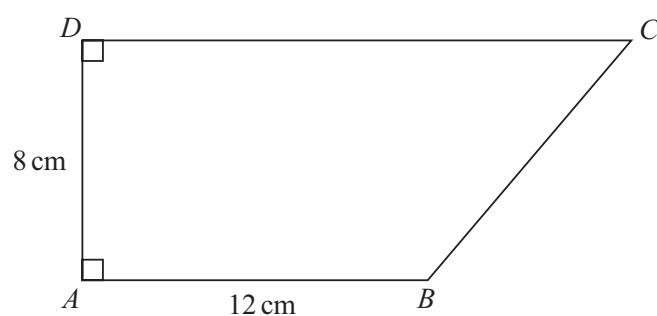
Work out the perimeter of the shaded shape.
Give your answer correct to 3 significant figures.

..... mm

(Total for Question 25 is 4 marks)



29 The diagram shows trapezium $ABCD$.



$$AB = 12 \text{ cm}$$

$$AD = 8 \text{ cm}$$

The trapezium has an area of 112 cm^2

Work out the perimeter of the trapezium.

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 29 is 5 marks)



SUB-TOPIC G5b

RIGHT-ANGLED TRIGONOMETRY & EXACT VALUES

Sub-topic G5b · 11 questions · 28 marks · lowest tariff first



30 Write down the value of $\sin 30^\circ$

.....
(Total for Question 30 is 1 mark)

TOTAL FOR PAPER IS 80 MARKS



29 Work out the value of $\frac{4^{-6} \times 4^9}{4}$

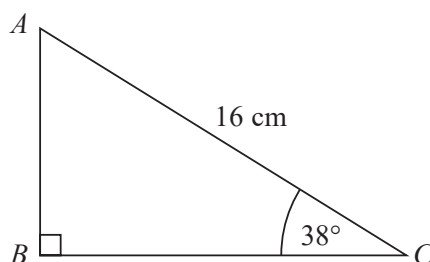
(Total for Question 29 is 2 marks)

30 Write down the exact value of $\cos 60^\circ$

(Total for Question 30 is 1 mark)



24 ABC is a right-angled triangle.



Calculate the length of AB .
Give your answer correct to 2 decimal places.

.....cm

(Total for Question 24 is 2 marks)

25 Sally used her calculator to work out the value of a number y .

The answer on her calculator display began

8.3

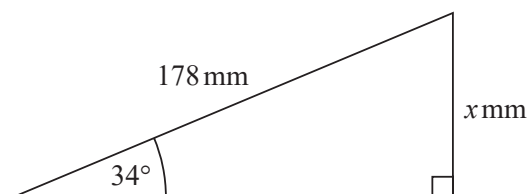
Complete the error interval for y .

..... $\leq y <$

(Total for Question 25 is 2 marks)



25



Work out the value of x .
Give your answer correct to 1 decimal place.

(Total for Question 25 is 2 marks)

26 $\mathbf{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$

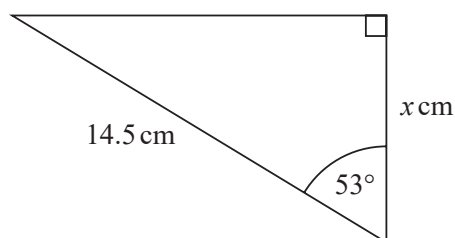
Find $2\mathbf{a} - 3\mathbf{b}$ as a column vector.

$$\begin{pmatrix} \\ \\ \end{pmatrix}$$

(Total for Question 26 is 2 marks)



22



Work out the value of x .
Give your answer correct to 3 significant figures.

 $x = \dots\dots\dots$

(Total for Question 22 is 2 marks)

23 Ella invests £7000 for 2 years in an account paying compound interest.

In the first year, the rate of interest is 3%

In the second year, the rate of interest is 1.5%

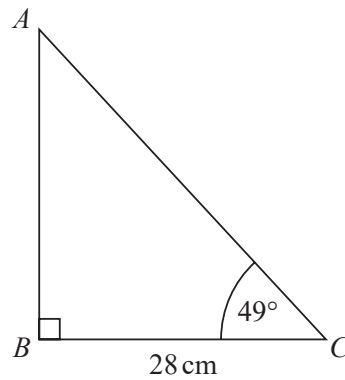
Work out the value of Ella's investment at the end of 2 years.

 $\pounds \dots\dots\dots$

(Total for Question 23 is 3 marks)



29 ABC is a right-angled triangle.



Calculate the length of AB .

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 29 is 2 marks)

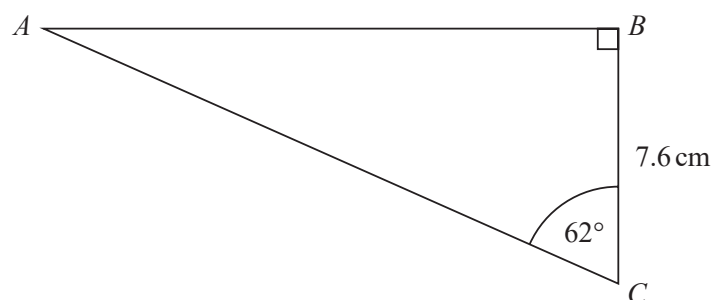
- 23 Jana used her calculator to find the value of a number t .
The answer on her calculator began 10.2

Complete the error interval for t .

..... $\leq t <$

(Total for Question 23 is 2 marks)

- 24 ABC is a right-angled triangle.

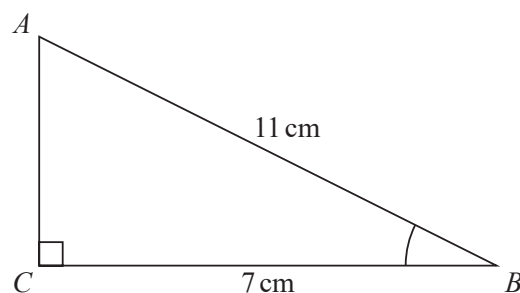


Calculate the length of AB .
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 24 is 2 marks)

23 ABC is a right-angled triangle.



- (a) Work out the size of angle ABC .
Give your answer correct to 1 decimal place.

.....
(2)

The length of the side AB is reduced by 1 cm.

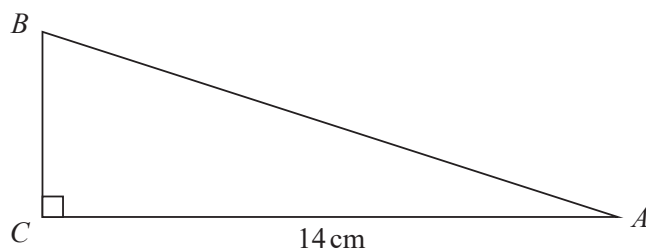
The length of the side BC is still 7 cm.
Angle ACB is still 90°

- (b) Will the value of $\cos ABC$ increase or decrease?
You must give a reason for your answer.

.....
(1)

(Total for Question 23 is 3 marks)

25 ABC is a right-angled triangle.



$AC = 14$ cm.

Angle $C = 90^\circ$

size of angle B : size of angle $A = 3 : 2$

Work out the length of AB .

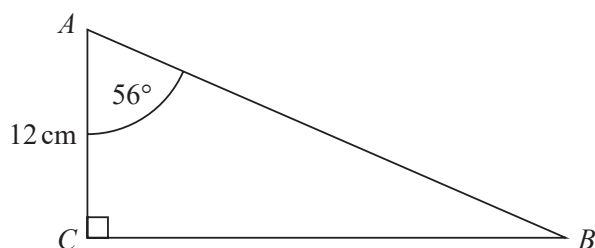
Give your answer correct to 3 significant figures.

.....cm

(Total for Question 25 is 4 marks)



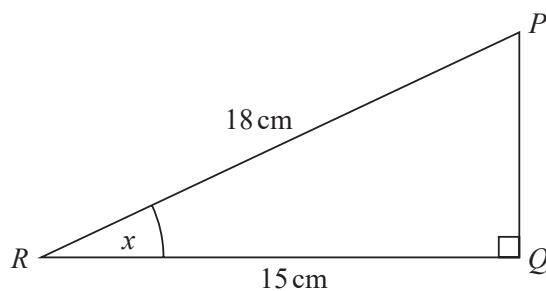
26 ABC is a right-angled triangle.



- (a) Work out the length of BC .
Give your answer correct to 1 decimal place.

..... cm
(2)

PQR is a right-angled triangle.



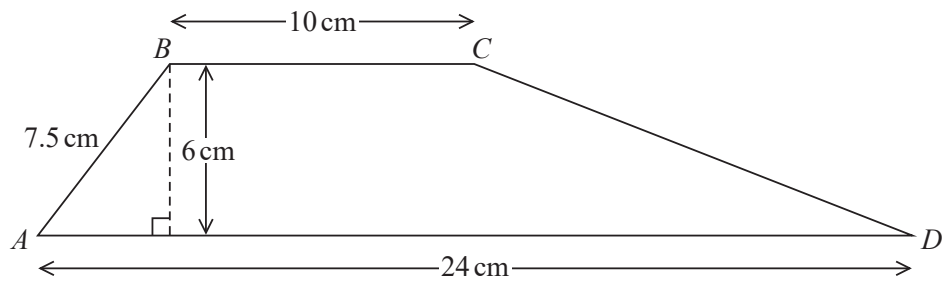
- (b) Work out the size of the angle marked x .
Give your answer correct to 1 decimal place.

.....
(2)

(Total for Question 26 is 4 marks)



22 $ABCD$ is a trapezium.



Work out the size of angle CDA .
Give your answer correct to 1 decimal place.

(Total for Question 22 is 5 marks)



MARK SCHEMES

official mark schemes, in the same order as the questions



Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
21	168	M1 A1	for a list of at least 3 multiples of each number or for factors 3,2,2,2 oe and 7,2,2,2 oe (could be shown in a factor tree or Venn diagram or table) cao	Condone the use of 1 as a factor
22	7.5	M1 A1	for correct use of Pythagoras, eg. $8.5^2 - 4^2 (= 56.25)$ or $4^2 + x^2 = 8.5^2$ for 7.5 or $7\frac{1}{2}$ or $\frac{15}{2}$	Must have values substituted Trigonometry may be used but M1 only awarded when complete method shown.
23 (a)	25	M1 A1	for $(T \Rightarrow) 4 \times (-3)^2 - 11$ or $4 \times (-3)^2 = 36$ cao	Can accept missing brackets
(b)	$p = \frac{d-4}{3}$ oe	M1 A1	for a correct first step, eg. $d - 4 = 3p$ or $\frac{d}{3} = p + \frac{4}{3}$ or for $\frac{d-4}{3}$ as answer for $p = \frac{d-4}{3}$ oe	May be in unsimplified form, eg $d - 4 = 3p + 4 - 4$



Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
19 (a)	0.517(0189759)	M1	for any correct partial calculation, eg 40.113 or 6.333(482454) or 12.25 or answer of 0.51 or 0.52 or digits 517...	Answer must be given to at least 3 decimal places rounded or truncated. Check first 3 significant figures only. Do not accept trailing 0, eg 0.520
		A1	for 0.517(...)	
	(b) 0.52	B1	for 0.52 or ft their answer to part (a) correctly rounded to 2 sf, provided part (a) has at least 3 sf	
20	16.2	M1	for a correct first step to find BC , eg $19^2 = 10^2 + BC^2$ or $19^2 - 10^2 (= 261)$ or $\sqrt{19^2 - 10^2}$ or $\sqrt{261}$ or $3\sqrt{29}$	Can use alternative letter for BC provided intention is clear If using an alternative method using trigonometry must have BC as the only unknown ISW incorrect rounding if answer given in range
		A1	for answer in the range 16.1 to 16.2	
21 (a)	$2 \times 3 \times 3 \times 5$	M1	for a complete method to find prime factors; could be shown on a complete factor tree with no more than one error or by division by prime factors with no more than one error or for 2, 3, 3, 5	Condone the inclusion of 1 for this mark Accept $2 \times 3^2 \times 5$ Accept $2^2 \times 3^2$ or $2 \times 2 \times 3 \times 3$
		A1	for $2 \times 3 \times 3 \times 5$ oe	
	(b) 36	B1	for 36	
22	4	M1	for method to use formula, eg $72 \div 6 (= 12)$ or $72 \div 9 (= 8)$	Can be implied by $\frac{72}{6}$ or $\frac{72}{9}$
		A1	cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
26	60.3	M1	for a correct trig statement, eg $\tan x = \frac{7}{4}$	Other methods are possible but only award this mark at the point of an equation with x as the only unknown
		A1	60.2 to 60.42	
27	25	P1	for working with density, eg $8 \times 1500 (= 12\,000)$ or $[\text{density}] \times 1500$	P marks can be awarded in either order [density] is 8×10^3 Condone $8 \times 1500 \times 300$ for this mark only P marks can be awarded in either order [mass] must be what they believe to be mass following a calculation that uses 8 and 1500 but not 300
		P1	for a correct conversion, eg “12 000” $\div 1000 (= 12)$ or $\frac{8}{1000} (= 0.008)$ or $300 \times 1000 (= 300\,000)$ or $[\text{mass}] \div 1000$	
		A1	cao	



Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	41.6	P1 P1 P1 A1	for start of process to find the length of the hypotenuse, eg (hyp ² =) $8^2 + 10^2 (= 164)$ for complete process to find hypotenuse, eg $\sqrt{8^2 + 10^2}$ or $\sqrt{64 + 100}$ or $2\sqrt{41}$ or $\sqrt{164}$ (= 12.8...) (dep P2) for complete process to find the required perimeter, eg $8 + 8 + 10 + "12.8" + "12.8 - 10"$ or $16 + 4\sqrt{41}$ for answer in the range 41 to 42	Note lengths may be seen on the diagram 8 + 8 + "12.8" + "12.8" oe is acceptable for this mark If an answer in the range 41 to 42 is given in the working space then incorrectly rounded, award full marks.
26 (a)	17.8	M1 A1	for $\tan 56 = \frac{x}{12}$ or $(BC) = 12 \times \tan 56$ oe or alternative method to find BC for an answer in the range 17.7 to 17.8	For any alternative method candidates must arrive at an equation with BC as the only unknown If an answer in the range 17.7 to 17.8 is given in the working space then incorrectly rounded, award full marks.
(b)	33.6	M1 A1	for $\cos x = \frac{15}{18}$ or $\cos x = 0.83..$ or $x = \cos^{-1} \frac{15}{18}$ or alternative method to find x for an answer in the range 33.5 to 33.91	For any alternative method candidates must arrive at an equation with x as the only unknown If an answer in the range 33.5 to 33.91 is given in the working space then incorrectly rounded, award full marks.

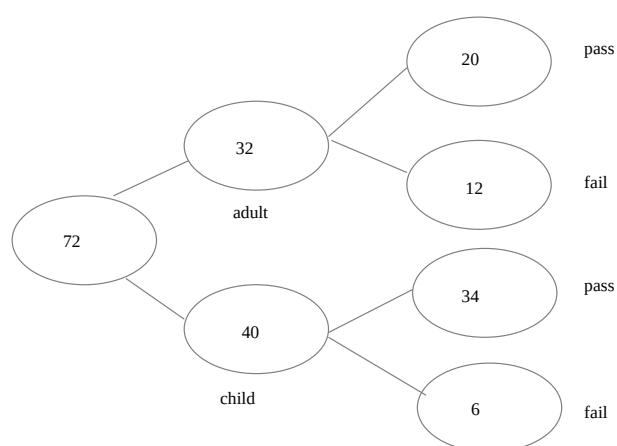


Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
29	44.9	P1	for process to find an expression for the area of the trapezium, eg $\frac{1}{2}(12 + CD)8$ or $8 \times 12 + \frac{1}{2} \times 8 \times x$ or for process to find the area of the triangle, eg $112 - 8 \times 12 (= 16)$	x is the length of the line from C to where perpendicular from B meets CD Allow use of other letters in place of CD and x (do not have to be defined unless otherwise stated) Award P1 for $112 - 8 \times 12 (= 16)$ even if not used
		P1	for forming an equation and isolating terms in the unknown length, eg $4CD = 112 - 48$ or $\frac{1}{2} \times 8 \times x = 112 - 8 \times 12$ or $\frac{1}{2} \times 8 \times x = "16"$ or $CD = 16$ or $x = 4$	Award P2 for $CD = 16$ or $x = 4$ even if not used unless clearly from incorrect working eg $12 - 8 (= 4)$ Only award P2 for 16 if it is clearly identified as CD
		P1	for start of process to find length of BC , eg $8^2 + "4"'^2 (= 80)$ or $8^2 + [\text{their } x]^2$ or $\tan^{-1}\left(\frac{"4"}{8}\right) (= 26.5\dots)$ oe $\tan^{-1}\left(\frac{8}{"4"}\right) (= 63.4\dots)$ where "4" can be [their x]	[their x] can be any value less than 12 or clearly identified as the length of the line from C to where perpendicular from B meets CD (may be seen on the diagram)
		P1	for $\sqrt{8^2 + "4"'^2}$ or $\sqrt{64 + "16"}$ or $\sqrt{80}$ or $4\sqrt{5} (= 8.9\dots)$ oe or $\sqrt{8^2 + [\text{their } x]^2}$ or $\frac{"4"}{\sin "26.5\dots"}$ or $\frac{8}{\cos "26.5\dots"}$ or $\frac{8}{\sin "63.4\dots"}$ or $\frac{"4"}{\cos "63.4\dots"}$ where "4" can be [their x]	Award P4 for $(BC =) \sqrt{80}$ or $4\sqrt{5}$ or 8.9... unless $x = 4$ is clearly from incorrect working
		A1	for answer in the range 44.9 to 44.95	If an answer is shown in the range in working and then incorrectly rounded award full marks

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
29	3 : 2	P1	for a process to find either volume eg $3^3 (= 27)$ or $4^3 (= 64)$	Ignore units quoted
		P1	for showing density A = $81 \div "27"$ (= 3) or density B = $128 \div "64"$ (= 2)	
		A1	for 3 : 2 oe	
30	0.5	B1	for 0.5 or $\frac{1}{2}$ oe	



Qu 17



Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
29	16	M1 A1	for simplifying using a correct rule of indices as a first step eg 4^{9-6} (= 4 ³ oe) or 4^{-6-1} (= 4 ⁻⁷ oe) or 4^{9-1} (= 4 ⁸ oe) or $\frac{4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4}{4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4}$ or 4 ² cao	
30	$\frac{1}{2}$	B1	for $\frac{1}{2}$ oe	
31	0.06	M1 A1	for 0.2×0.3 oe 0.06 oe	Accept any equivalent fraction or 6%



Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
24	9.85	M1	for $\sin(38) = \frac{AB}{16}$ oe or alternative method to find AB	
		A1	for an answer in the range 9.76 to 9.92	
25	8.3 and 8.4	B1	for 8.3 in the correct position	Accept 8.39' or 8.399...
		B1	for 8.4 in the correct position	
26	168	P1	for working with ratio to find the amount for C or D eg. $1.5 \times 2 (=3)$ or (A, B, C, D =) 2, 7, 3, 3 oe OR for suitable expressions linking A with C or D, eg. $A = x$, $C = 1.5x$	
		P1	for "2 + 3 + 3 + 7" (=15) OR adds 4 suitable expressions, eg. " $x + 3.5x + 1.5x + 1.5x$ " (= 7.5x)	
		P1	for a complete process to find the amount of money eg. $360 \div "15" \times 7$ OR $360 \div "7.5" \times 3.5$	
		A1	cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
24 (a)	13, (6), 5, 4, -3	B2	for all 4 values correct	Accept a freehand curve drawn that is not made of line segments Line sections outside the required range can be ignored.
		(B1	for 2 or 3 correct values)	
		M1	ft (dep on B1) for plotting at least 4 of the points from their table correctly	
(b)	Correct graph	A1	for a fully correct curve drawn	
25	99.5	M1	for $\sin(34) = \frac{x}{178}$ oe or alternative method to find x	If an answer in the range 99.5 to 99.7 is given in the working space then incorrectly rounded, award full marks
		A1	for answer in range 99.5 to 99.7	
26	$\begin{pmatrix} -9 \\ 14 \end{pmatrix}$	M1	for $2\begin{pmatrix} 3 \\ 4 \end{pmatrix} - 3\begin{pmatrix} 5 \\ -2 \end{pmatrix}$ or $\begin{pmatrix} 6 \\ 8 \end{pmatrix}$ and $\begin{pmatrix} 15 \\ -6 \end{pmatrix}$ or $\begin{pmatrix} -9 \\ y \end{pmatrix}$ or $\begin{pmatrix} x \\ 14 \end{pmatrix}$	May be seen in two separate calculations eg $2 \times 3 + -3 \times 5$ and $2 \times 4 + -3 \times -2$ Condone incorrect notation if method is clear for this mark only
		A1	cao	



Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	8.73	M1	for a correct trig statement, eg $14.5 \times \cos 53$ or $\cos 53 = x \div 14.5$	Can use a combination of skills but must have only one unknown in x to score this mark If an answer is given in the range in working and then rounded incorrectly award full marks.
		A1	answer in the range 8.726 to 8.73	
23	7318.15	M1	for a correct first step eg working out increase for one year $7000 \times (100 + 3) \div 100 (= 7210)$ oe or $7000 \times 3 \div 100 (= 210)$ oe or find the multiplier for both years eg $(100 + 3) \div 100 \times (100 + 1.5) \div 100 (= 1.04545)$	7315 or 315 implies M1
		M1	for a compound method, eg $7000 \times (100 + 3) \div 100 \times (100 + 1.5) \div 100$ oe or “7210” $\times 1.5 \div 100$ or $(= 108.15)$ oe	318.15 implies M1M1A0
		A1	cao	
24	(a) 4	B1	for 4	Condone (0,4) or 0,4 Accept both solutions given as a coordinate for M1 eg (5.2, 0.8) or (0.8, 5.2) or (5.2, 0) and (0.8, 0)
	(b) (3, -5)	B1	cao	
	(c) 5.1 to 5.3 and 0.7 to 0.9	M1	for a correct method, eg marking both intercepts with x-axis or one correct solution	
		A1	for answers in the range 5.1 to 5.3 and 0.7 to 0.9	
25	(a) 1.25	B1	for 1.25 or $\frac{5}{4}$ or $1\frac{1}{4}$	Accept 4749.9 or 4749.99(...)
	(b) 4650 and 4750	B1	for 4650 in the correct position	
		B1	for 4750 in the correct position	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
29	32.2	M1	for a correct trig statement, eg $28 \times \tan 49$ or $\tan 49 = AB \div 28$	Can use a combination of skills but must have only one unknown in x to score this mark If an answer is given in the range in working and then rounded incorrectly award full marks.
		A1	Answer in the range 32.2 to 32.22	
30	$x = -2$ $y = 1.5$	M1	for correct method to eliminate either x or y or a method leading to substitution	condone one arithmetic error
		M1	(dep M1) for substituting found value in one of the equations or correct method after starting again	condone one arithmetic error
		A1	for $x = -2$ and $y = 1.5$ oe	



Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	Comparison	B1	for correctly identifying the median of (School) A as 57	If median for school B is stated in the comparison it must be correct
		C1	(ft, dep on value for the median being stated) for making a correct comparison of <u>median</u> eg 'the median of (School) A is higher than the median of (School) B'	
		B1	for correctly identifying the range of (School) A as 49	
		C1	(ft, dep on value for the range being stated) for making a correct comparison of <u>range</u> eg 'the range of (School) A is higher than the range of (School) B'	
23	10.2 and 10.3	B1	for 10.2 in the correct place	Accept 10.29 or 10.299(99...)
		B1	for 10.3 in the correct place	
24	14.3	M1	for a correct statement for AB using trigonometry, eg $\tan 62 = \frac{AB}{7.6}$ or $(AB =) 7.6 \times \tan 62$	If an answer is given in the range in working and then rounded incorrectly award full marks
		A1	answer in the range 14.28 to 14.3	



Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	Probabilities should sum to 1	C1	for stating that the probabilities should total 1 eg 0.25 should be 0.35	Can be shown on the diagram
	0.35 and 0.65 reversed	C1	for recognising that the 0.35 and 0.65 in the first branches for the 2nd throw should be reversed eg, “for the second throw, the probability it lands on 4 should be 0.65”	
23 (a)	50.5	M1 A1	for $\cos ABC = \frac{7}{11}$ (0.63...) oe for answer in the range 50.4 to 50.51	Must be a complete statement for cos, sin or tan with all three elements present. If an answer is in the range 50.4 to 50.51 is given in the working space then incorrectly rounded, award full marks.
(b)	Increase (supported)	C1	States increase with supporting reason eg “ $\frac{7}{10}$ is greater than $\frac{7}{11}$ ” “0.636 is less than 0.7”“cos increases as angle decreases” “decreasing the denominator increases the value of the fraction” “angle is now 45.6” (accept 45.5 – 45.6)	If figures are given they must be correct (truncated or rounded).



Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	17.3	P1	for full process to find either angle eg $(180 - 90) \div (2+3) \times 2$ or for 36 or 54 seen as an angle	May be seen on diagram Condone correct values if incorrectly placed.
		P1	for a correct equation using trigonometry eg $\cos [A] = 14 \div AB$	This must be shown as an equation with all four elements (eg $\cos$, $[A]$, 14, AB) present. $[A]$ could be 36 or any angle clearly and unambiguously identified as A . This also applies to $[B]$ with Sine.
		P1	(dep previous P mark) for rearranging their trigonometry equation to make AB the subject eg $(AB =) "14 \div \cos 36"$	
		A1	for an answer in the range 17.3 to 17.4	If an answer is shown in the range in working and then incorrectly rounded award full marks.
26	$6n - 1$	M1	for $6n + k$, where $k \neq -1$ or missing	Accept a different variable for M1 only
		A1	oe	Note $n = 6n - 1$ gets M1 only

Paper: 1MA1/2F				
Question	Working	Answer	Mark	Notes
22		32.3	P1 P1 P1 P1 A1	for using Pythagoras to find length of third side of triangle, eg $7.5^2 - 6^2$ or $6^2 + x^2 = 7.5^2$ or uses trigonometry to find angle in triangle eg $\sin A = \frac{6}{7.5}$ or $\cos B = \frac{6}{7.5}$ (dep P1) for complete process to find length of third side of triangle eg $\sqrt{7.5^2 - 6^2}$ or $\sqrt{56.25 - 36}$ or $\sqrt{20.25}$ (=4.5) or uses trigonometry to find base length of triangle eg $7.5 \times \cos "A"$ or $7.5 \times \sin "B"$ or $\frac{6}{\tan "A"}$ (dep P2) for $24 - 10 - "4.5"$ (=9.5) (indep) for process to find angle CDA, eg $\tan CDA = \frac{6}{base}$ from right-angled triangle for answer in the range 32.2 to 32.3
23 (a)		2.7560...	M1 A1	for 1.0654(059...), 0.1402(633...), 7.5957(541...), 2.756 truncated or rounded to no less than 2dp for 2.7560(....)
(b)		2.76	B1	for 2.76 ft from (a)

