



Mark Scheme (Final)

Summer 2026

Pearson Edexcel International GCSE

Mathematics A

4MA1/2F

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme.

Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

- **Types of mark**

- M marks: method marks
- A marks: accuracy marks
- B marks: unconditional accuracy marks (independent of M marks)

- **Abbreviations**

- cao – correct answer only
- ft – follow through
- isw – ignore subsequent working
- SC - special case
- oe – or equivalent (and appropriate)
- dep – dependent
- indep – independent

- awrt – answer which rounds to
- eooo – each error or omission

- **No working**

If no working is shown then correct answers normally score full marks
If no working is shown then incorrect (even though nearly correct) answers score no marks.

- **With working**

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

If it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks.

If a candidate misreads a number from the question. Eg. Uses 252 instead of 255; method marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review. If there is a choice of methods shown, mark the method that leads to the answer on the answer line; where no answer is given on the answer line, award the lowest mark from the methods shown.

If there is no answer on the answer line then check the working for an obvious answer.

- **Ignoring subsequent work**

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: eg. Incorrect cancelling of a fraction that would otherwise be correct.

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

- **Parts of questions**

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded to another.

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)		20	1	B1 cao
(b)		correct bar drawn	1	B1 bar of height 25 above the latte label ignore thickness of the bar
(c)		10	1	B1 cao
				Total 3 marks

2 (a) (i)		56	1	B1 cao
(ii)	Acceptable examples +9 goes up by 9 $47 + 9$ $9n + 2$ $n + 9$ the difference/gap is +9 Not acceptable examples 9 the difference/gap is 9 $9n$	explanation	1	B1 for any indication that the term was found by adding 9 allow if calculation seen near sequence
(b) (i)		243	1	B1 cao
(ii)	Acceptable examples All terms are odd / it is even Not divisible by 3 / not a multiple of 3 $2186 \div 3 (= 728.6(6\dots))$ is not an integer It is not divisible by 9 / 27 / 81 / 243 It should be 2187 Not a power of 3 The numbers in the sequence end in 1, 3, 9 or 7 Not acceptable examples The rule is times by 3 $2186 \div 3 = 728.6(\dots)$	explanation	1	B1 for a suitable explanation
				Total 4 marks

3	(a)		grams or kilograms	1	B1 Allow g or kg Condone incorrect spellings if intention clear
	(b)		B	1	B1 Allow b
					Total 2 marks

4	(a)		0.9	1	B1 allow trailing zeroes
	(b)		any 9 squares shaded	1	B1 oe
	(c)		$\frac{11}{16}$	1	B1 accept 0.6875
	(d)		15	1	B1 cao
					Total 4 marks

5	(jug =) 1.2 (l) or 1200 (ml) or (cup =) 150 (ml) or 0.15 (l)		4	B1 for an accurate reading of the jug or the cup
	[reading of the jug] $\times$ 1000 (= (1000, 2000)) or [reading of the cup] $\div$ 1000 (= (0.1, 0.2))			M1 for a correct method to convert their reading of the cup into litres or their reading of the jug into millilitres, where: <ul style="list-style-type: none"> • 1 < [reading of the jug] < 2 • 100 < [reading of the cup] < 200 <p>Allow this mark to be implied by a value in the range (1000, 2000) for the jug or a value in the range (0.1, 0.2) for the cup; note these intervals do not contain the endpoints</p> <p>note sight of 1200 or 0.15 scores B1M1</p>
	“(1000, 2000)” – [reading of the cup] (=1050) or [reading of the jug] – “(0.1, 0.2)” (= 1.05)			M1 for subtracting their readings following a correct method to convert where <ul style="list-style-type: none"> • 1 < [reading of the jug] < 2 • 100 < [reading of the cup] < 200 <p>allow subtraction to be reversed</p> <p>allow this mark to be implied by a correct difference for their stated readings within the acceptable ranges</p> <p>an answer of 1.05 or 1050 implies B1M1M1</p>
	<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	1050 ml or 1.05 l		A1 accept 1 litre and 50 ml units must be stated (allow litre or l or millilitres or ml) condone incorrect spelling of millilitres or litres provided intention clear If 0 scored, SCB1 for answer 900 (ml) or 0.9 (l)
				Total 4 marks

6	(a) (i)		14	1	B1
	(ii)		20	1	B1 allow $4 \times 5 = 20$ or $5 \times 4 = 20$ do not allow 5, 10, 15, 20 without 20 identified
	(b)	eg $2 + 3 = 5$ or $3 + 2 = 5$ 2 and 3 give 5 3 and 2 give 5	Any one example	1	B1 states an even number and states an odd number and correctly calculates the sum there is no need to write an explicit sum but there must be some indication of which number is the value of the sum from the two numbers being summed, there is no need to identify which is even and which is odd if more than one example is given, they must also be correct do not allow eg $3 - 2 = 1$ but allow eg $3 + -2 = 1$
					Total 3 marks

7	(a)	$\frac{195}{65} (=3)$ or $\frac{65}{195} (= \frac{1}{3} = 0.33(\dots))$ or $\frac{130}{65} (=2)$ or $\frac{65}{130} (= \frac{1}{2} = 0.5)$ or $\frac{195 \times 130}{65}$ oe		2	M1 for a correct method to find a scale factor using 65 and 195 or for a method to find the number of euros per litre or the number of litres per euro; ignore units or for a complete method
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	390		A1 cao
	(b)	$\frac{100}{130} (= \frac{10}{13} = 0.76(9\dots))$ or $\frac{130}{100} (=1.3)$ or $\frac{100}{[\text{their (a)}]} (= \frac{10}{39} = 0.25(6\dots))$ or $\frac{[\text{their (a)}]}{100} (=3.9)$ or $100 \times \frac{65}{130}$ or $100 \times "0.5"$ or $100 \div \frac{130}{65}$ or $100 \div "2"$ oe		2	M1 for a correct method to find a scale factor using 100 and 130 or for a correct method to find a scale factor using 100 and their answer to (a) or for a complete method (allow use of their litres per euro or euros per litre scale factor from (a) provided the scale factor has come from a correct method)
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	50		A1 cao
					Total 4 marks

Use overlay for Question 8

8		Fully correct kite with suitable arcs	3	<p>B3 for the correct kite and suitable arcs for B and D shown or for the correct kite and the perpendicular bisector of AC drawn and suitable arcs shown for the bisector</p> <p>(B2 for the correct kite drawn without suitable arcs or for suitable arcs for B and D shown without the correct kite drawn or for the correct perpendicular bisector of AC drawn and suitable arcs shown for the bisector)</p> <p>(B1 for the correct position of B or D with or without suitable arcs or suitable arcs shown for the perpendicular bisector of AC without the bisector drawn)</p> <p>Note: no labels required and ignore incorrect labelling throughout</p> <p>Note: the kite may be drawn with D on the left or B on the right for all marks</p> <p>Note:</p> <ul style="list-style-type: none"> • suitable arcs for B consist of two intersecting arcs, each with radius 5 cm, one centred at A and one centred at C • suitable arcs for D consist of two intersecting arcs, each with radius 7 cm, one centred at A and one centred at C • suitable arcs for the perpendicular bisector consist of two intersecting arcs of equal radii, one centred at A and one centred at C <p>Note: allow arcs and kite within the tolerances shown on the overlay</p>
				Total 3 marks

9	(a)		$7h - 3p$	2	B2	correct simplified expression, allow $-3p + 7h$ (B1 for $7h$ or $-3p$ seen) Note: $7h + -3p$ scores B1 only
	(b)	$4 \times 9 (=36)$ and $\pm 3 \times 5 (= \pm 15)$		2	M1	for a complete and correct substitution to find the value of $4c$ and the value of $3r$ or $-3r$ do not allow this mark for 4×9 or 36 if $36c$ seen do not allow this mark for $\pm 3 \times 5$ or ± 15 if $\pm 15r$ seen
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	21		A1	cao SCB1 for -7 (from $4 \times 5 - 3 \times 9$) or 51 (from $36 + 15$)
	(c)	$4n = 21 + 9$ or $-21 - 9 = -4n$ or $4n = 30$ or $-30 = -4n$ or $n - \frac{9}{4} = \frac{21}{4}$ or $(21 + 9) \div 4$ oe		2	M1	for a correct first step carried out in an equation or for a complete numerical method
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	7.5		A1	oe eg $7\frac{1}{2}$ or $\frac{15}{2}$ or $\frac{30}{4}$
					Total 6 marks	

10	(a)	<table><tr><td></td><td colspan="5">First card</td></tr><tr><td></td><td>4</td><td>5</td><td>7</td><td>10</td><td>10</td></tr><tr><td>4</td><td>0</td><td>1</td><td>3</td><td>6</td><td>6</td></tr><tr><td>5</td><td>1</td><td>0</td><td>2</td><td>5</td><td>5</td></tr><tr><td>7</td><td>3</td><td>2</td><td>0</td><td>3</td><td>3</td></tr><tr><td>10</td><td>6</td><td>5</td><td>3</td><td>0</td><td>0</td></tr><tr><td>10</td><td>6</td><td>5</td><td>3</td><td>0</td><td>0</td></tr></table>		First card						4	5	7	10	10	4	0	1	3	6	6	5	1	0	2	5	5	7	3	2	0	3	3	10	6	5	3	0	0	10	6	5	3	0	0	Correct values	1	B1 for all 5 correct values
	First card																																														
	4	5	7	10	10																																										
4	0	1	3	6	6																																										
5	1	0	2	5	5																																										
7	3	2	0	3	3																																										
10	6	5	3	0	0																																										
10	6	5	3	0	0																																										
	(b)	$\frac{m}{25}$ where m is an integer and $0 < m < 25$ or $\frac{7}{n}$ where n is an integer and $n > 7$ (ft their completed diagram) or $7 : 25$ (ft their completed diagram)		2	M1ft for correct denominator of the probability or correct numerator of the probability (allow ft the number of 0 scores in their completed diagram) or correct probability in the wrong format (allow ft the number of 0 scores in their completed diagram)																																										
		Correct answer scores full marks (unless from obvious incorrect working).	$\frac{7}{25}$		A1ft correct probability or ft the number of 0 scores in their completed diagram accept equivalents eg 0.28 or 28% ISW attempts to simplify or convert between fractions, decimals and percentages after a correct probability is seen																																										
					Total 3 marks																																										

11	$\frac{1}{4} \times 300 (=75)$ oe or $\left(1 - \frac{1}{4}\right) \times 300 (=225)$ oe		4	M1	for a correct method to work out the number of premium or standard tickets
	“75” $\times 14 (=1050)$ or $(300 - \text{“75”}) \times 9$ or “225” $\times 9 (=2025)$			M1	for a correct method to find the cost of the premium tickets or the cost of the standard tickets
	“75” $\times 14 (=1050)$ and $(300 - \text{“75”}) \times 9$ or “225” $\times 9 (=2025)$			M1	for a correct method to find the cost of the premium tickets and the cost of the standard tickets
	<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	3075		A1	cao SCB3 for 3825 (switching the costs around)
				Total 4 marks	

12		$T = 6x + 20y$	3	<p>B3 correct formula oe, must see $T =$ allow B3 if $T = 6x + 20y$ seen in working but then $6x + 20y$ on the answer line</p> <p>(B2 for $6x + 20y$ oe or $T = 6x + ny$ ($n \neq 20$ but can be 0) or $T = mx + 20y$ ($m \neq 6$ but can be 0) or $T = 20x + 6y$ or $T = 6x - 20y$ or $T = 6x \times 20y$ or $T = 6x \div 20y$ or $T = 20y - 6x$ etc or for the correct answer seen but then spoilt, eg $T = 6x + 20y = 26xy$</p> <p>allow incorrect simplification of a seen B2 response for B2)</p> <p>(B1 for $6x$ seen without sight of $x + 6$ or $x - 6$ or x^6 or $x \div 6$ etc or for $20y$ seen without sight of $y + 20$ or $y - 20$ or y^{20} or $y - 20$ etc or for $20x + 6y$ or $T =$ any expression in x and y eg $T = x + y$ or $T = xy$ or $T = x - y$ or $T = x \div y$ or $T = x^6 + y^6$ etc)</p> <p>allow $6 \times x$ or $x6$ for $6x$ throughout allow $20 \times y$ or $y20$ for $20y$ throughout</p> <p>allow b for x and s for y throughout</p> <p>allow upper and lower case letters for T and x (or b) and y (or s) throughout</p>
				Total 3 marks

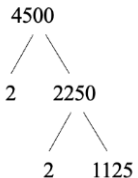
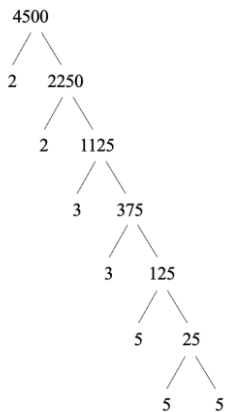
13	(a)	$\frac{360}{5+7} (= 30)$ or $\frac{360}{5+7} \times 5 (=150)$ oe or $\frac{360}{5+7} \times 7$ oe		2	M1 for a correct method to find the value of 1 part of the ratio or for a correct method to find the weight of flour used for the small cake or for a complete method
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	210		A1 cao
	(b)	$\frac{360}{9} (= 40)$ or $\frac{360}{9} \times 13 (= 520)$ or $\frac{4}{9} (=0.44\dots)$ or $\frac{9}{4} (=2.25)$ or $\frac{360}{9} \times 4$ oe		2	M1 for a correct method to find the value of 1 part of the ratio or the total weight of flour and butter or for a scale factor or for a complete method
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	160		A1 cao
					Total 4 marks

14	$3.8 \times 15 (= 57)$ oe		4	M1	for a correct method for the area note: $3.8 \times 15 \times 2$ or $3.8 \times 15 \div 2$ scores M0 even if done in two stages
	$"57" \div 2.5 (= 22.8 \text{ or } 23 \text{ or } 22)$			M1	for a method to find the number of tins needed
	$"22" \times 184 (= 4048)$ or $"23" \times 184$			M1	for a method to find the cost using a whole number of tins (which can come from rounding up or down)
	<i>Working required</i>	4232		A1	dep on M1 SCB3 for 4195.2(0) (coming from 22.8×184) SCB2 for 2944 (use of perimeter and rounding up) SCB1 for 2760 (use of perimeter and rounding down)
				Total 4 marks	

15	<p>eg $\frac{4}{5} \times \frac{1}{8} = \frac{4 \times 1}{5 \times 8} \left(= \frac{4}{40} \right)$ oe</p> <p>or $\frac{4 \times 8}{5 \times 8} \times \frac{1 \times 5}{8 \times 5} = \frac{4 \times 8 \times 1 \times 5}{5 \times 8 \times 8 \times 5} \left(= \frac{32 \times 5}{40 \times 40} \right)$ oe</p> <p>or $\frac{\cancel{4}^1}{5} \times \frac{1}{\cancel{8}^2} \left(= \frac{1}{5} \times \frac{1}{2} \right)$</p> <p>or $\frac{8}{10} \times \frac{1}{8}$</p> <p>or $\frac{4}{5} \div \frac{8}{1} = \frac{0.5}{5}$</p> <p>OR</p> <p>$0.8 \times 0.125 = 0.1$ or $0.8 \times \frac{1}{8} = 0.1$</p> <p>or $\frac{4}{5} \times 0.125 = 0.125 \div 5 \times 4 (= 0.1)$</p>		2	<p>M1 for multiplying numerators and denominators using the given fractions</p> <p>or for a correct method to convert to equivalent fractions and then multiply numerators and denominators</p> <p>or for cancelling down</p> <p>or for writing as $\frac{8}{10} \times \frac{1}{8}$</p> <p>or for correctly carrying out a division in a fraction</p> <p>OR</p> <p>for writing both as decimals and reaching 0.1</p> <p>or for writing $0.8 \times \frac{1}{8}$ and reaching 0.1</p> <p>or for writing $\frac{4}{5} \times 0.125$ and showing a method for this</p>
	<p>eg $\frac{4}{5} \times \frac{1}{8} = \frac{4}{40} = \frac{1}{10}$ or $\frac{32 \times 5}{40 \times 40} = \frac{160}{1600} = \frac{1}{10}$</p> <p>or $\frac{4}{5} \times \frac{1}{8} = \frac{1}{5} \times \frac{1}{2} = \frac{1}{10}$ or $\frac{\cancel{4}^1}{5} \times \frac{1}{\cancel{8}^2} = \frac{1}{10}$</p> <p>or $\frac{8}{10} \times \frac{1}{8} = \frac{1}{10}$</p> <p>or $\frac{4}{5} \div \frac{8}{1} = \frac{0.5}{5} = \frac{1}{10}$</p> <p>OR</p> <p>$0.8 \times 0.125 = 0.1 = \frac{1}{10}$</p> <p>or $0.8 \times \frac{1}{8} = 0.1 = \frac{1}{10}$</p> <p>or $\frac{4}{5} \times 0.125 = 0.125 \div 5 \times 4 = 0.1 = \frac{1}{10}$</p>	shown		<p>A1 dep on M1</p> <p>for a correct complete method leading to $\frac{1}{10}$</p> <p>If using a decimal method, they must get to 0.1 and identify this is equivalent to $\frac{1}{10}$</p> <p>Note: $0.8 \times 0.125 = \frac{1}{10}$ only scores M0A0</p>
	Working required			Total 2 marks

16	(i)	$\frac{m}{20}$ where m is an integer and $0 < m < 20$ or $\frac{8}{n}$ where n is an integer and $n > 8$ or $8 : 20$ oe		2	M1	for the correct denominator of the probability or for the correct numerator of the probability or for the correct probability in the wrong format
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	$\frac{8}{20}$		A1	accept equivalents eg $\frac{2}{5}$ or 0.4 or 40% ISW attempts to simplify or convert between fractions, decimals and percentages after correct probability seen
	(ii)	$\frac{m}{20}$ where m is an integer and $0 < m < 20$ or $\frac{7}{n}$ where n is an integer and $n > 7$ or $7 : 20$ oe		2	M1ft	ft their denominator from (i) if not 20 provided it is greater than 7 for the correct denominator of the probability or for the correct numerator of the probability or for the correct probability in the wrong format
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	$\frac{7}{20}$		A1ft	ft their denominator from (i) if not 20 provided it is greater than 7 accept equivalents eg 0.35 or 35% allow use of their denominator from (i) if not 20 ISW attempts to simplify or convert between fractions, decimals and percentages after correct probability seen If 0/2 scored in (i) and 0/2 scored in (ii), • SCB1 for an answer of 8 in (i) and answer of 7 in (ii) NB: penalise incorrect notation once only in this question. If A0 scored for incorrect in (i) for eg $8 : 20$, then allow A1 in (ii) for $7 : 20$
					Total 4 marks	

17	$72 \div 6 (= 12)$ or $54 \div 6 (= 9)$ or $25 \div 6 (= 4.16\dots)$ or $72 \times 54 \times 24 (= 93\,312)$ or $6 \times 6 \times 6 (= 216)$ or $72 \times 54 \times 25 (= 97\,200)$ or $72 \times 54 (\times 1) (= 3888)$		3	M1 for a method to find the number of dice that can fit along an edge of the box (may be seen drawn along edges on diagram) or for a method to find the volume of the box using 24 as the height or for a method to find the volume of a dice or for a method to find the volume of the box or for a method to find the volume of the unused space
	eg $"12" \times "9" \times "4"$ or $"93\,312" \div "216"$ or $("97\,200" - "3888") \div "216"$			M1 for a complete method
	<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	432		A1 cao SCB2 for 540 (coming from $12 \times 9 \times 5$) SCB1 for 450 (coming from $97200 \div 216$)
				Total 3 marks

18	eg $2 \times 2250 = 2 \times 225 \times 10$ or $2 \times 2250 = 2 \times 2 \times 1125$ or $2 \times 2250 = 2 \times 5 \times 450$ or $100 \times 45 = 10 \times 10 \times 45$ or $100 \times 45 = 2^2 \times 5^2 \times 45$ or $9 \times 500 = 9 \times 5 \times 100$ or $9 \times 500 = 9 \times 50 \times 10$		3	M1 for finding prime factors or factors after at least 2 stages of factorisation seen with 0 incorrect stages eg $2 \times 2250 = 2 \times 225 \times 10$ or for finding at least 2 prime factors after at least 3 stages in factorisation with no more than 1 incorrect stage eg 45×10 (incorrect) $= 9 \times 5 \times 5 \times 2$ Each stage gives 2 factors – may be in a factor tree or a table or listed (see LHS for examples of the amount of work needed for the award of this mark)														
	eg <table><tr><td>2</td><td>4500</td></tr><tr><td>2</td><td>2250</td></tr><tr><td></td><td>1125</td></tr></table>	2		4500	2	2250		1125	eg 									
	2	4500																
	2	2250																
	1125																	
eg $2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 5$																		
eg <table><tr><td>2</td><td>4500</td></tr><tr><td>2</td><td>2250</td></tr><tr><td>3</td><td>1125</td></tr><tr><td>3</td><td>375</td></tr><tr><td>5</td><td>125</td></tr><tr><td>5</td><td>25</td></tr><tr><td>5</td><td>5</td></tr><tr><td></td><td>(1)</td></tr></table>	2	4500	2	2250	3	1125	3	375	5	125	5	25	5	5		(1)	eg 	
2	4500																	
2	2250																	
3	1125																	
3	375																	
5	125																	
5	25																	
5	5																	
	(1)																	
	Working required	$2^2 \times 3^2 \times 5^3$		M1 dep on M1 for prime factors 2, 2, 3, 3, 5, 5, 5 with no others (ignore 1s) OR for getting to factors with a product of 4500 with at most one factor remaining that has not been fully factorised. This remaining factor must be the product of exactly two prime factors or a power of a single prime; allow use of index form eg 4, 3, 3, 5, 5, 5 or 2, 2, 9, 5, 5, 5 or 2, 3, 6, 5, 5, 5 or 4, 3 ² , 5 ³ or 2 ² , 9, 5 ³ or 2, 3, 3, 5, 5, 10 or 2, 2, 3, 3, 125 or 2, 2, 3, 5 ² , 15 Can be in any form, eg listed, multiplied, added May be seen in a factor tree or ladder														
				A1 dep on M1, may be in any order and allow $2^2 \cdot 3^2 \cdot 5^3$														
				Total 3 marks														

19	(a)	$8 \times 40 - 5 (= 315)$ or $8 \times 60 - 5 (= 475)$ or $\frac{63}{95}$ or $\frac{95}{63}$ or $1\frac{32}{63}$		3	M1	for a method to find the 40th term or the 60th term or the 40th term as a simplified fraction of the 60th term (or the reciprocal)
		“315” : “475” or $95 : 63$ or $1 : \frac{63}{95}$ or $\frac{95}{63} : 1$			M1	for forming the ratio or for the correct simplified ratio the other way around
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	63 : 95		A1	correct ratio in simplest form accept $1 : \frac{95}{63}$ or $\frac{63}{95} : 1$ for $\frac{95}{63}$, accept $1\frac{32}{63}$ oe or 1.51 or 1.507(9...) for $\frac{63}{95}$, accept 0.66(3...)
	(b)			2	M1	$5n + k$ oe k may be algebraic, any integer, zero or absent
		<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	$5n - 2$		A1	oe eg $3 + 5(n - 1)$ NB award full marks for eg $x = 5n - 2$ or $x = 5 \times n - 2$ oe or $x = n \times 5 - 2$ oe or n th term = $5n - 2$ or n th term = $5 \times n - 2$ oe or n th term = $n \times 5 - 2$ oe or Allow eg T_n or U_n or a_n for n th term but award M1A0 for $n = 5n - 2$
					Total 5 marks	

20	(a)		$27 < h \leq 31$	1	B1 for the correct class allow eg $27 \leq h \leq 31$ or $27 < h < 31$ or $27 \leq h < 31$ or $27 - 31$
	(b)	$17 \times 2 + 21 \times 5 + 25 \times 12 + 29 \times 15 + 33 \times 6$ or $34 + 105 + 300 + 435 + 198 (= 1072)$ [lower bound products are: 30, 95, 276, 405, 186] [upper bound products are: 38, 115, 324, 465, 210]		4	M2 for at least 4 correct products added (need not be evaluated) (M1 for use of values within interval (including end points) for at least 4 products added or correct midpoints used for at least 4 products and not added)
		"1072" $\div$ 40			M1 dep on M1 allow division by their Σf provided addition or total under column seen
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	26.8		A1 accept $\frac{134}{5}$ or $26\frac{4}{5}$ oe mixed number accept 27 if $\frac{1072}{40}$ or $1072 \div 40$ or 26.8 oe seen ignore conversion to hours and minutes
					Total 5 marks

21	$612 - 450 (= 162)$ or $\frac{612}{450} (= 1.36)$ oe		3	M1 for finding the difference or the fractional increase
	$\frac{"162"}{450} \left(= \frac{9}{25} = 0.36 \right)$ or $\frac{"162"}{450} \times 100$ or $"1.36" - 1 \left(= \frac{9}{25} = 0.36 \right)$ or $("1.36" - 1) \times 100$ or $"1.36" \times 100 (=136)$ or $("1.36" \times 100) - 100$			M1 for a correct method to find the percentage increase or be one calculation away
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	36		A1
				Total 3 marks

22	(a)	enlargement	3	B1 for enlargement with no mention of translate, reflect, rotate, move, flip etc Accept: enlargement, enlarge, enlarged
		(scale factor) 2		B1 for scale factor 2 with no mention of a vector, line of symmetry or angle Accept: scale factor 2, SF 2, $\times 2$, factor of 2, two times, 2
		(centre) (1, 3)		B1 for the correct centre (1, 3) as a coordinate Accept: (1, 3) or 1, 3
	(b)	Use overlay	1	B1 Condone missing label
				Total 4 marks

23	$180 \times (5 - 2) \text{ or } 5 \times \left(180 - \frac{360}{5}\right) (= 540) \text{ oe}$ OR $(180 - 96) + (180 - 91) + (180 - 93) + 2y = 360$ or $84 + 89 + 87 + 2y = 360$ or $(180 - 96) + (180 - 91) + (180 - 93) (= 84 + 89 + 87 = 260)$ or $360 - (180 - 96) - (180 - 91) - (180 - 93) (= 100)$		3	M1 for a correct method to find the sum of the interior angles OR forming an equation involving exterior angles (y is the exterior angle at E and B) may use any letter or finding the total of the exterior angles for the known angles or for the unknown angles
	eg $(2x =) \text{ "540" } - 96 - 91 - 93 (= \text{ "540" } - 280 = 260)$ or $(x =) \frac{\text{ "540" } - 96 - 91 - 93}{2} \text{ oe } \left(= \frac{\text{ "540" } - 280}{2} \right)$ OR $(y =) \frac{\text{ "100" }}{2} (=50) \text{ or } (x =) 180 - \frac{\text{ "100" }}{2} \text{ oe}$			M1 (dep on M1) for getting as far as the value for $2x$ or for a complete method for x using interior angles OR for finding the exterior angle at E or B or for a complete method using exterior angles
	<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	130		A1 cao
				Total 3 marks

24	$\pi \times 7^2 \times 18$ (= 882π or [2769, 2772])		3	M1	for a correct method to find the volume of the cylinder
	$120L = \pi \times 7^2 \times 18$ or $(L =) \frac{\pi \times 7^2 \times 18}{120}$			M1	for forming an equation or a complete method allow any letter for L ignore any units used in the equation
	<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	23.1		A1	awrt 23.1
				Total 3 marks	

25	$100(\%) + 17(\%)$ (=117(%)) or $1 + 0.17$ (=1.17) oe or $\frac{3276}{117}$ (= 28) oe		3	M1	may be seen embedded Do not allow $(1 + 17\%)$ unless correctly processed
	$\frac{3276}{"1.17"}$ or $\frac{3276}{117} \times 100$ oe			M1	for a complete method
	<i>Correct answer scores full marks (unless from obvious incorrect working).</i>	2800		A1	
				Total 3 marks	

26	(a)		7	1	B1
	(b)		$8m^{15}p^{12}$	2	B2 for $8m^{15}p^{12}$ (B1 for a single product with any two of 8, m^{15} and p^{12} correct, eg $km^{15}p^{12}$ where $k \neq 8$ or $8m^ap^{12}$ where $a \neq 15$ or $8m^{15}p^b$ where $b \neq 12$. One term can be missing with 2 correct for B1)
	(c)		$6cw^2(3c^4 + 5w)$	2	B2 for the correct factorisation (B1 for a correct partial factorisation of at least 2 from 6, c and w or w^2 outside the bracket, eg $6c(3c^4w^2 + 5w^3)$ or $cw(18c^4w + 30w^2)$ or for the correct highest common factor on the outside and two terms inside the bracket with one correct eg $6cw^2(3c^4 + \dots)$ or $6cw^2(\dots + 5w)$ or for $(3c^4 + 5w)$ as a factor)
	(d)	$(x \pm 9)(x \pm 3)$ or $x(x - 3) + 9(x - 3)$ or $x(x + 9) - 3(x + 9)$ OR $(x + a)(x + b)$ where $ab = -27$ or $a + b = 6$ and a and b are integers and $a, b \neq 0$		2	M1 allow any letter for x
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	$(x + 9)(x - 3)$		A1 correct factorisation; allow any letter for x ISW if correct factorisation is seen followed by an attempt to solve
					Total 7 marks

27	$0.15 \times 32\,000 (= 4800)$ oe or $(1 - 0.15) \times 32\,000 (= 27\,200)$ oe		4	M1 for a correct method to find 15% or 85% of 32 000 allow this mark for sight of 36 800 or 48 668 or 14 400 or 17 600	M2	for $0.85^3 \times 32\,000 (= 19\,652)$ or $0.85^4 \times 32\,000 (= 16\,704)$
	eg $0.15 \times (32\,000 - "4800") (= 4080)$ and $0.15 \times (32\,000 - "4800" - "4080") (= 3468)$ and $32\,000 - (4800 + 4080 + 3468) (= 19\,652)$ OR $(1 - 0.15) \times "27\,200" (= 23\,120)$ oe and $(1 - 0.15) \times "23\,120" (= 19\,652)$ oe OR $0.85^2 \times "27\,200" (= 19\,652)$ oe			M1 for a complete method to find the value of the car after 3 years Do not accept $(1 - 15\%)$ in place of $(1 - 0.15)$ unless correctly processed		
	$\frac{"19\,652" - 2516}{3 \times 12}$ or $17\,136 \div (3 \times 12)$ oe or $\frac{[\text{value of the car}] - 2516}{3 \times 12}$ oe			M1 dep on M1 for a method to find the monthly payment [value of the car] is what they believe to be the value of the car after 3 years. There must be some attempt to use more than one year of depreciation and the value must satisfy $2516 < [\text{value of the car}] < 32\,000$		
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	476		A1 cao SCB3 for either of the following: <ul style="list-style-type: none"> answer in the range [394, 395] (use of 4 years) answer 1282 (use of 15% increase) SCB2 for: <ul style="list-style-type: none"> answer 419 (simple depreciation) 		
				Total 4 marks		

