

Paper 1MA1: 1H				
Question	Working	Answer	Notes	
1		32.968	M1 A1 A1	for correct method (condone one error) for digits 32968 ft (dep M1) for correct placement of decimal pt
2		$m^2 + 10m + 21$	M1 A1	for at least 3 terms out of a maximum of 4 correct from expansion
3		152	M1 M1 A1	Start to method $ABD = 38^\circ$ and BAD or DBC or $DCB = 38^\circ$ ADB or $BDC = 180 - 2 \times 38 (=104)$ for 152 with working
4 (a)		48	P1 P1 A1	start to process eg. $3 \times 80 (=240)$ '240' $\div 5$
(b)			C1	eg. she may drive a different distance and therefore her average speed could be different

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5		28	<p>P1 Process to start to solve problem eg. $\frac{3}{5} \times 40$ or divide any number in the ratio 3:2</p> <p>P1 Second step in process to solve problem eg. $\frac{2}{5} \times 10$ or find number of males/females under 25 for candidate's chosen number for complete process</p> <p>P1</p> <p>A1</p>
6		Correct sketch	<p>C1 interprets diagram eg. draw a solid shape with at least two correct dimensions</p> <p>C1 draws correct prism with all necessary dimensions.</p>
7		400	<p>P1 Start to process eg. $1200 \div 60$</p> <p>A1 400 oe (accept number of whole pizzas eg. $400 \div 4 = 100$ with 4 people per pizza)</p> <p>C1 Eg. Assumption that sample is representative of population – it may not be all 1200 people are going to the party – need less pizza if they don't, assume 4 people per pizza – if different may need more/fewer pizzas</p>

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8		$x = 21, y = 50$	P1 P1 A1 P1 A1	process to start solving problem eg. form an appropriate equation complete process to isolate terms in x for $x = 21$ complete process to find second variable $y = 50$
9		2.7×10^4	M1 A1	For evidence of a correct method eg. $27 \times 10^{4+7}$
10 (a) (b)		8 $\frac{25}{4}$ oe	B1 M1 A1	 for correct first step
11 (a) (b)		2.5×10^{24} Under-estimate	P1 P1 A1 C1	process to estimate or divide a complete process eg. $(1 \times 10^3) \div (4 \times 10^{-22})$ fit from (i) Eg. under estimate as number rounded up but in denominator of fraction

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12		150 000	M1 $60 \div 100^2$ or $900 \div 60$ or $900 \div "60"$ A1
13		6.4	P1 Start to process eg. find scale factor (0.4) or $\frac{AE}{4} = \frac{4}{10}$ P1 Complete process to find area A1
14	(a) Median = 22; lq = 18; uq = 26 (b)	Box plot Ben with reason	C1 Start to interpret information eg. one of median, lq, uq correct C1 Starts to communicate information eg. box plot with box, whiskers and at least 3 of median, lq, uq, min and max correct C1 Correct box plot M1 interpret information eg ft from box plot to find iqr (8) or range (11) C1 ft eg. Ben with lower iqr (8) and range (11)
15		No with reason	C1 Starts to formulate reason eg. No with partial explanation or 0.8×0.7 or starts to use figures C1 No with full explanation eg. $0.8 \times 0.7 = 0.56$ so only 44% reduction
16		$5(2x + 1)(2x - 1)$	M1 for $5(4x^2 - 1)$ A1

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17		$a = \frac{7-3r}{r-2}$	M1 M1 A1	Remove fraction and expand brackets Isolate terms in a
18		Given result	M1 M1 A1	For length scale factor eg $\sqrt{\frac{4}{9}}$ or 120 : 405 $\left(\sqrt{\frac{4}{9}}\right)^3 \times 405$ or $2^3 : 3^3$ (from 120 : 405) 120 from correct arithmetic or conclusion relating $2^3 : 3^3$ with $2^2 : 3^2$ with correct working
19		$x > 4, x < -1$	M1 M1 A1	rearrange quadratic and factorise critical values of 4 and -1 found
20 (a)		$(-2, -2)(-6, -2)$ $(-2, -4)(-4, -4)$	M1 A1	Shape drawn in correct orientation
(b)		Enlargement sf -0.5 centre (0,0)	C1	

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21 (a)		25	C1	For interpretation eg. area equated to 1750m
(b)		Description	P1	Process to solve equation
			A1	
			C1	Start to interpret graph eg. describe or give acceleration for one stage of the journey or state that acceleration is constant in all 3 parts
22			C1	Describe acceleration for all stages of the journey or give acceleration for all 3 stages (1.25 m/s^2 ; 0 m/s^2 ; -0.625 m/s^2)
			C1	C1 for frequencies used for heights or areas not proportional to frequencies
23		Given result	C1	C1 for 2^{nd} mistake - final bar of wrong width
			C1	Correct first step towards simplifying expression eg. $\frac{\sqrt{2}}{\sqrt{2}+1}$
			C1	Correct step to rationalise denominator
			C1	Conclusion to given result

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24		25	P1 For process to start to solve. Eg use of x and $4x$ or $x/5x$ and $4x/5x$
			P1 process to form equation eg $\frac{x}{5x} \times \frac{x-1}{5x-1} = \frac{6}{155}$
			P1 Processes to eliminate fractions and reduce equation to linear form eg. $155x - 155 = 150x - 30$
			A1
25		$3y - 4x = 11$	P1 process to start to solve problem eg. draw a diagram, find gradient of AB (0.5)
			P1 process to use gradients eg. find gradient of BC (-2)
			P1 Process to find y coordinate of C (9)
			P1 Process to find equation of AC
			A1