



Mathematics

Paper 3

(Calculator)

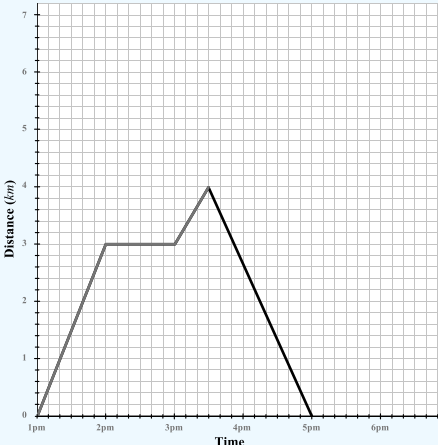
Foundation Tier

Mark Scheme

OCR GCSE

SET 2

Question	Working	Answer	Notes
Q1a		8.8cm	A1 accept 8.7 – 8.9cm
Q1b i		61°	A1 accept 60° – 62°
Q1b ii		acute	B1 cao
Q2a		3600	A1 cao
Q2b		4000	A1 cao
Q3a		12cm	A1 cao
Q3b		4	B1 cao
Q4a		52	A1 cao
Q4b		243	A1 cao
Q5		0.103, 0.31, 1.033, 1.11, 1.3	B1 cao
Q6a		5:7	B1 cao
Q6b	3 more shaded = 8 shaded $\frac{8}{12} = \frac{2}{3}$	$\frac{2}{3}$	M1 $\frac{8}{12}$ seen A1 correct fully simplified fraction
Q7		25, 36	A1 25 A1 36
Q8a		1 hour	B1 cao

Question	Working	Answer	Notes
Q8b			M1 Line drawn all the way down to x axis A1 Correct line to 5pm
Q9a	$1 - 0.2 = 0.8$	0.8	A1 cao
Q9b	$\frac{1}{8} = 0.125$ $0.2 = \frac{1}{5}$	Nathaniel	M1 $\frac{1}{8} = 0.125$ or $0.2 = \frac{1}{5}$ and attempt at common denominator A1 Correct answer following correct working
Q9c	$0.2 \times 0.2 = 0.04$	0.04	M1 0.2×0.2 A1 cao
Q10a		-6	A1 cao
Q10b		4	A1 cao
Q11a	$0.15 \times 420 = \text{£}63$ $\text{£}420 - 63 = \text{£}357$		M1 £63 or 85% seen or implied A1 cao
Q11b	$357 - 57 = 300$ $300 \div 24 = \text{£}12.50$	£12.50	M1 $300 \div 24$ A1 cao
Q12a		$f + 1 = 7$	B1 cao

Question	Working	Answer	Notes
Q12b		$2(x + 4) = 2x + 8$	B1 cao
Q12c		$m < 5$	B1 cao
Q13	1. The points have been plotted at the lower bounds of the class intervals rather than the midpoints 2. The first and last points have been joined		B1 One correct statement B1 Two correct statements
Q14		F – H F – B R – H R – B H – B	M1 At least 4 additional correct combinations A1 Exactly 5 additional distinct combinations
Q15	$42 \div 7 = 6$ $6 \times 2 = 12$ small blocks $6 \times 5 = 30$ large blocks $12 \times 350 = 4200g = 4.2kg$ $30 \times 600 = 18000g = 18kg$ $4.2 + 18 = 22.2kg$ They do not have enough	No, they only have 22.2kg	M1 $42 \div 7 = 6$ A1 12 small blocks and 30 large blocks M1 <i>ft</i> their '12' $\times 350$ and their '30' $\times 600$ A1 22.2kg with a correct statement
Q16a		$2^2 \times 3 \times 7$ or $2 \times 2 \times 3 \times 7$	M1 At least three correct prime factors identified A1 cao

Question	Working	Answer	Notes
Q16b	$30 = 2 \times 3 \times 5$ LCM: $2^2 \times 3 \times 5 \times 7 = 420$	420	M1 30 written as product of primes or multiples of 30 and 84 listed A1 cao
Q17a		065°	M1 North line drawn from the lighthouse and line from lighthouse to ship drawn A1 Answer in range $063^\circ - 067^\circ$
Q17b	$5.5 \times 20 = 110km$	$90km$	M1 Line measured with measurement in range $4.4 - 4.6cm$ seen A1 cao
Q18a		$6(2x + 3y)$	M1 $6(ax + by)$ A1 cao
Q18b	$12x + 6 = 54$ $12x = 48$ $x = 4$	$x = 4$	M1 Correct first step (expand brackets or divide by 3) leading to $x =$ A1 cao
Q19a	1 hour 30 minutes = 1.5 hours $\frac{22.8}{1.5} = 15.2km/h$	$15.2km/h$	M1 1.5 hours seen M1 Attempt to divide a distance by a time A1 cao
Q19b		A	B1 cao

Question	Working	Answer	Notes																
Q20a	<table border="1"><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>y</td><td>8</td><td>3</td><td>0</td><td>-1</td><td>0</td><td>3</td><td>8</td></tr></table>	x	-2	-1	0	1	2	3	4	y	8	3	0	-1	0	3	8	8, 0, 3	M1 One correct value A1 All three values correct
x	-2	-1	0	1	2	3	4												
y	8	3	0	-1	0	3	8												
Q20b			M1 <i>ft</i> At least 4 of their points plotted correctly A1 All points plotted correctly and joined by a curve																
Q20c		-1 and 3	A1 -1 or 3 A1 -1 and 3																
Q21			M1 2, 3 and 5 correctly placed M1 At least 6 other values correctly placed M1 4, 8, 9, 12, 14 correctly placed A1 Fully correct Venn diagram																

Question	Working	Answer	Notes
Q22a		p^7	A1 cao
Q22b		$4q^5$	M1 $4q^x$ or xq^5 A1 cao
Q23	$\pi \times 7^2 = 153.938...$ $\frac{280}{360} \times 153.938... = 119.7295867...$	119.7cm^2	M1 $\pi \times 7^2 = 153.938...$ M1 Correct method to find $\frac{280}{360}$ of their area A1 Correct answer, rounded to 1 decimal place
Q24a		$8.65 \leq n < 8.75$	A1 8.65 A1 8.75
Q24b		2.85, 2.9	M1 2.85 or 2.9 circled. No more than 3 values circled in total A1 2.85 and 2.9 only circled
Q24c	Upper bound for distance is 35 miles. He can travel $26 \times 1.2 = 31.2$ miles	No, they can only travel 31.2 miles	M1 He can travel 31.2 miles M1 Upper bound for distance is 35 miles A1 No with correct explanation
Q25a	$0 \times 8 + 1 \times 13 + 2 \times 7 + 3 \times 3 + 4 \times 1 = 40$ $40 \div 32 = 1.25$	1.25	M1 Multiplying number of siblings by frequencies M1 <i>ft</i> Their sum divided by 32 A1 cao

Question	Working	Answer	Notes
Q25b		-It is between 0 and 4 -The most common number of siblings was 1 so you would expect it to be around 1	A1 A correct explanation
Q26a	Angle sum is $(n - 2) \times 180 = 4 \times 180 = 720^\circ$ 6 angles so interior angle is $720 \div 6 = 120^\circ$ Isosceles triangle so angles ABF and AFB equal $180 - 120 = 60$ $60 \div 2 = 30^\circ$	30°	M1 A correct method to find interior or exterior angle of hexagon M1 Interior angle 120° or exterior angle 60° M1 $\frac{180 - 120}{2}$ oe with either 'angles in a triangle add up to 180° ' or 'isosceles triangle' A1 Correct answer following correct reasoning
Q26b	$180 - 90 - 60 = 30$	30°	M1 Angle CBF = 90° or angle BCF = 60° or indication that AB and CF parallel so alternate angles A1 cao
Q27a	Surface area: $2 \times 9 \times 16 = 288$ $2 \times 9 \times x = 18x$ $2 \times 16 \times x = 32x$ $18x + 32x + 288 = 50x + 288$		M1 Attempt to find area of each face M1 Adds all 6 areas M1 Reaches $50x + 288$ following correct method A1 Sets $50x + 288 < 900$
Q27b	$50x < 612$ $x < 12.24$	$x < 12.24$	M1 Subtracting 288 A1 cao

Question	Working	Answer	Notes
Q27c		12	B1 cao
Q28a	$2y = 1.2 \times 10^4$ $4 \times 10^5 + 1.2 \times 10^4$ $400000 + 12000 = 412000$	4.12×10^5	M1 Evidence of correct substitution into $x + 2y$ A1 cao
Q28b	$10 \times 6.25 \times 10^{-4} = 6.25 \times 10^{-3}$	A grain of rice	M1 $10 \times 6.25 \times 10^{-4} = 6.25 \times 10^{-3}$ A1 cao

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