



THIRD SPACE  
LEARNING

# Mathematics

## Paper 2

### (Calculator)

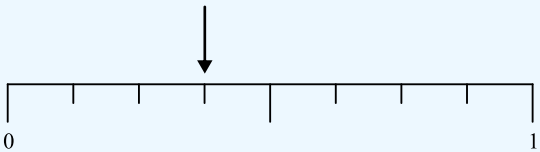
### Foundation Tier

### Mark Scheme

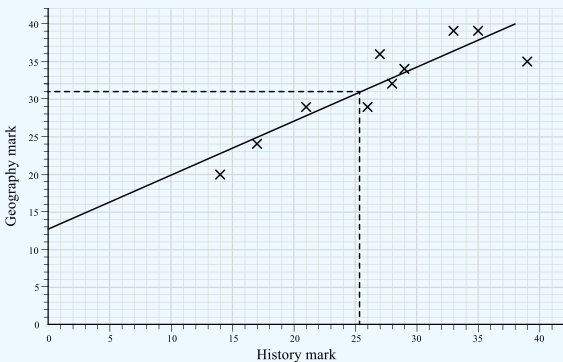
AQA GCSE

SET 5

Question	Working	Answer	Notes								
Q1a		$\frac{77}{100}$									
Q1b		0.375									
Q1c		48%									
Q2a		38700									
Q2b		0.38									
Q3a		$4b$									
Q3b		$9a$									
Q3c		$y^3$									
Q4a		Pyramid or Square based pyramid									
Q4b	<table><tr><th>Property</th><th>Shape/shapes</th></tr><tr><td>1 line of symmetry</td><td><math>C</math></td></tr><tr><td>2 lines of symmetry</td><td><math>A, D</math></td></tr><tr><td>Rotational symmetry order 2</td><td><math>A, B, D</math></td></tr></table>	Property	Shape/shapes	1 line of symmetry	$C$	2 lines of symmetry	$A, D$	Rotational symmetry order 2	$A, B, D$		B1 for each correct row
Property	Shape/shapes										
1 line of symmetry	$C$										
2 lines of symmetry	$A, D$										
Rotational symmetry order 2	$A, B, D$										
Q5	$69871 - 69543 = 328$ $328 \times 45 = 14760\text{p}$ $14760\text{p} = \text{£}147.60$	£147.60	M1 $69871 - 69543 = 328$ M1 Multiply by 45 or 0.45 M1 14760p or £147.60 A1 Correct answer in £								

Question	Working	Answer	Notes
<b>Q6</b>	$180 - 148 = 32$	$32^\circ$	
<b>Q7a</b>	0711 to 0744	33 minutes	
<b>Q7b</b>	Leave house by 0803 Catch bus in Saron at 0811 Get off bus in Carmarthen at 0855 Arrive at office 0906		B1 Leave house by 0803 B1 Catch bus in Saron at 0811 Get off bus in Carmarthen at 0855 B1 Arrive at office 0906
<b>Q8a</b>		4.8km	
<b>Q8b</b>	9km = 5.6 miles 90km per hour = 56 miles per hour	Yes	M1 9km = 5.6 miles M1 90km per hour = 56 miles per hour B1 Yes he breaks the speed limit - correct conclusion following correct working
<b>Q9</b>	$3000 \times 5 = 15000$ $24 \times 16 = 384$ tubes of toothpaste per box $15000 \div 384 = 39.065$	39	M1 $3000 \times 5 = 15000$ M1 $24 \times 16 = 384$ M1 $15000 \div 384 = 39.065$ A1 39 – must be whole number
<b>Q10</b>	$3 + 7 + 6 = 16$ $P(\text{yellow}) = \frac{6}{16} = \frac{3}{8}$ 		M1 $P(\text{yellow}) = \frac{6}{16} (= \frac{3}{8})$ A1 Arrow placed in correct place

Question	Working	Answer	Notes																				
Q11	$a = 379 - 13^2 = 210$ $b = \frac{24 \times 32}{12.8} = 60$ $\frac{210}{60} = 3.5$	3.5	M1 210 or 60 A1 cao																				
Q12		10 million																					
Q13	<table border="1"><thead><tr><th></th><th>Margherita</th><th>Hawaiian</th><th>Pepperoni</th><th>Total</th></tr></thead><tbody><tr><td>Child</td><td>42</td><td>18</td><td>22</td><td>82</td></tr><tr><td>Adult</td><td>20</td><td>36</td><td>12</td><td>68</td></tr><tr><td>Total</td><td>62</td><td>54</td><td>34</td><td>150</td></tr></tbody></table>		Margherita	Hawaiian	Pepperoni	Total	Child	42	18	22	82	Adult	20	36	12	68	Total	62	54	34	150	22	M1 Sets up 2 way table M1 68 adults M1 36 adults/54 people chose hawaiian A1 22 children chose pepperoni
	Margherita	Hawaiian	Pepperoni	Total																			
Child	42	18	22	82																			
Adult	20	36	12	68																			
Total	62	54	34	150																			
Q14	$\frac{50 \times 6 + 150 \times 16 + 250 \times 11 + 350 \times 10 + 450 \times 7}{6 + 16 + 11 + 10 + 7}$ $= \frac{12100}{50}$ $= 242$	242	M1 Correct midpoints multiplied by frequencies M1 “12100” ÷ “50” (where their “12100” has come from five products within the group intervals and their “50” is $\sum f$ ) A1 cao																				
Q15a		$n > -1$																					
Q15b	$3p - 11 < p + 5$ $2p - 11 < 5$ $2p < 16$ $p < 8$	$p < 8$	M1 $2p - 11 < 5$ M1 $2p < 16$ A1 $p < 8$																				

Question	Working	Answer	Notes
<b>Q16a</b>		Positive correlation	
<b>Q16b</b>		31	<p>M1 For method to read off (e.g. line of best fit or a line up from 25)</p> <p>A1 for an answer in the range 26 - 36</p>
<b>Q16c</b>		Geography seems easier as the marks are generally higher	<p>B1 'Geography seems easier'</p> <p>B1 'Because the marks are generally higher' oe</p>
<b>Q17a</b>	Difference = 5	$5n + 1$	<p>B2 for fully correct answer</p> <p>(Award B1 for <math>5n + k</math>, where <math>k \neq 1</math>, or <math>k</math> missing)</p>
<b>Q17b</b>	$n^2 + 3 = 172$ $n^2 = 169$ $n = 13$ 172 is 13th term 14th term: $14^2 + 3 = 199$	199	<p>M1 Attempt to solve <math>n^2 + 3 = 172</math></p> <p>M1 Establish 14th term needed</p> <p>A1 cao</p>
<b>Q18a</b>	3 parts = 27 1 part = 9 5 parts = $5 \times 9 = 45$		<p>M1 Divides by 3 to give 1 part</p> <p>A1 Multiplies by 5 to give 5 parts</p>

Question	Working	Answer	Notes
<b>Q18b</b>	$\frac{3}{5}$ of 45 = 27 $\frac{2}{3}$ of 27 = 18 27 + 18 = 45 have popcorn $\frac{45}{72} \times 100 = 62.5\%$	62.5%	M1 $\frac{3}{5}$ of 45 = 27 M1 $\frac{2}{3}$ of 27 = 18 A1 $\frac{45}{54} \times 100 = 62.5\%$
<b>Q19</b>	$\tan(x) = \frac{6}{11}$ $x = \tan^{-1}\left(\frac{6}{11}\right)$ $x = 28.61045967$	$x = 28.6^\circ$	M1 $\tan(x) = \frac{6}{11}$ or $x = \tan^{-1}\left(\frac{6}{11}\right)$ A1 Correct answer, rounded to 3sf
<b>Q20</b>	Try different values: $7000 \times 1.06^4 = 8837.34$ $7000 \times 1.06^5 = 9367.58$ $7000 \times 1.06^6 = 9929.63$	$n = 5$	M1 Tries at least 1 value for $n$ A1 cao
<b>Q21</b>	$50^2 + 70^2 = 7400$ $\sqrt{7400} = 86.02(\dots)$ $86.02(\dots) + 50 + 70 = 206.02(\dots)$ $206.02(\dots) \times 2.50 = \text{£}515.058 \text{ (131}\dots\text{)}$	£515.06	M1 Attempts to use Pythagoras theorem M1 ft Their “86.02” + 50 + 70 (dep on previous M1) M1 ft Multiplies their “206.02” by 2.50 A1 cao


Question	Working	Answer	Notes
<b>Q22</b>	$15a + 10b = 55$ $8a - 10b = 60$ $23a = 115$ $a = 5$ $3 \times 5 + 2b = 11$ $15 + 2b = 11$ $2b = -4$ $b = -2$	$a = 5$ $b = -2$	M1 Correct method to eliminate either $a$ or $b$ M1 (dep) For substituting found value in one of the equations A1 Both values correct
<b>Q23a</b>	$\frac{1}{0.4} = 2.5$	2.5	
<b>Q23b</b>		$5.25 \leq x < 5.35$	B1 5.25 B1 5.35
<b>Q24</b>	Co-interior angle = $180 - 121 = 59$ Bearing = $360 - 59 = 301^\circ$	$301^\circ$	M1 Correct sketch with bearing labelled or correct first step A1 cao
<b>Q25</b>	Scale factor: $18 \div 12 = 1.5$ $1.5(2x + 10) = 5x + 9$ $3x + 15 = 5x + 9$ $15 = 2x + 9$ $6 = 2x$ $x = 3$ Perimeter = $5 \times 3 + 9 + 3 \times 3 + 4 + 18$ $= 24 + 13 + 18 = 55\text{cm}$	55cm	B1 Scale factor: $18 \div 12 (= 1.5)$ M1 "Their 1.5" $\times (2x + 10) = 5x + 9$ A1 $x = 3$ M1 (dep at least M1 previously awarded) Substitutes their " $x$ " to find perimeter A1 cao

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