



THIRD SPACE  
LEARNING

# Mathematics

## Paper 2

### (Calculator)

### Foundation Tier

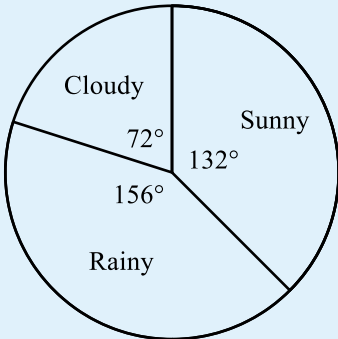
### Mark Scheme

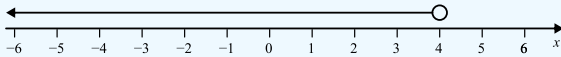
AQA GCSE

SET 3

Question	Working	Answer	Notes
Q1		70	A1 cao
Q2		720	A1 cao
Q3		4.4	A1 cao
Q4		50	A1 cao
Q5		5	A1 cao
Q6a		Hexagon	B1 cao
Q6b		6	A1 cao
Q7	$10 \times 5 = \text{£}50$ $50 - 18 - 6 - 3 = \text{£}23$	£23	M1 $10 \times 5$ ( = £50 ) or $50 - 27$ ( = 23 ) seen A1 cao
Q8	$p$ pigs $2p$ sheep $p + 2p = 3p$	$3p$	A1 cao

Question	Working	Answer	Notes
<b>Q9</b>  $3.2\text{km} = 2 \text{ miles}$ $6 - 2 = 4 \text{ miles left}$		4 miles	M1 $3.2\text{km} = 2 \text{ miles}$ A1 cao
<b>Q10a</b>	$9 \times 3 - 2 = 25$	25	A1 cao
<b>Q10b</b>	$85 \div 5 = 17$ $17 - 6 = 11$	+11	M1 $85 \div 5 (= 17)$ or $17 - 6 (= 11)$ seen A1 cao
<b>Q11</b>	20% of 145 = 29 $145 - 29 = \text{£}116$ 15% of 130 = 19.50 $130 - 19.50 = \text{£}110.50$	Shop B	M1 29 and 19.50 seen or implied M1 116 and 110.50 seen or implied A1 Correct answer following correct working
<b>Q12</b>	$C = 2 \times 10 + 5 - 3$ $C = 20 - 15 = 5$	$C = 5$	M1 Evidence that 10 and $-3$ substituted into the expression A1 cao
<b>Q13a</b>		<	B1 cao
<b>Q13b</b>	$\frac{5}{7} = \frac{15}{21}$	<	A1 cao

Question	Working	Answer	Notes												
Q13c		=	A1 cao												
Q14	Area trapezium: $\frac{1}{2}(8 + 11) \times 7 = 66.5$ $66.5 \times 2 = 133$ $133 \div 5 = 26.6$	$x = 26.6cm$	M1 Area trapezium: $\frac{1}{2}(8 + 11) \times 7 (= 66.5)$ or <i>ft</i> area rectangle = Their ‘66.5’ $\times 2$ M1 <i>ft</i> Divides their ‘130’ by 5 A1 cao												
Q15	$11 + 13 + 6 = 30$ $360 \div 30 = 12$ <table border="1"><thead><tr><th>Weather</th><th>Number of days</th><th>Angle</th></tr></thead><tbody><tr><td>Sunny</td><td>11</td><td><math>11 \times 12 = 132^\circ</math></td></tr><tr><td>Rainy</td><td>13</td><td><math>13 \times 12 = 156^\circ</math></td></tr><tr><td>Cloudy</td><td>6</td><td><math>6 \times 12 = 72^\circ</math></td></tr></tbody></table>	Weather	Number of days	Angle	Sunny	11	$11 \times 12 = 132^\circ$	Rainy	13	$13 \times 12 = 156^\circ$	Cloudy	6	$6 \times 12 = 72^\circ$		M1 $11 + 13 + 6 = 30$ or $360 \div 30 = 12$ seen M1 At least 2 angles correctly calculated A1 Fully correct pie chart with sectors labelled
Weather	Number of days	Angle													
Sunny	11	$11 \times 12 = 132^\circ$													
Rainy	13	$13 \times 12 = 156^\circ$													
Cloudy	6	$6 \times 12 = 72^\circ$													
Q16	$250 \div 1.90 = 131.58 \text{ g/£}$ $400 \div 2.20 = 181.82 \text{ g/£}$ $600 \div 3.60 = 166.67 \text{ g/£}$ Or $190 \div 250 = 0.76 \text{ p/g}$ $220 \div 400 = 0.55 \text{ p/g}$ $360 \div 600 = 0.6 \text{ p/g}$	400g	M1 Attempt to divide weight by cost or cost by weight for each container M1 At least 2 correct answers M1 All 3 correct A1 Container B indicated following correct working												
Q17a	$3x - 6 < 6$ $3x < 12$ $x < 4$	$x < 4$	M1 $3x - 6 < 6$ or $3x < 12$ seen A1 cao												

Question	Working	Answer	Notes												
Q17b			M1 <i>ft</i> correctly represents their answer from (a) A1 cao												
Q18a		$p + q$ can be even or odd	A1 cao												
Q18b	<table><tr><td></td><td>True</td><td>False</td></tr><tr><td><math>mn</math> is negative</td><td></td><td>✓</td></tr><tr><td><math>2m</math> is positive</td><td></td><td>✓</td></tr><tr><td><math>n^2</math> is positive</td><td>✓</td><td></td></tr></table>		True	False	$mn$ is negative		✓	$2m$ is positive		✓	$n^2$ is positive	✓			B1 2 rows correct B1 All correct
	True	False													
$mn$ is negative		✓													
$2m$ is positive		✓													
$n^2$ is positive	✓														
Q19	Butter: $500 \div 125 = 4$ Flour: $900 \div 150 = 6$ Sugar: $450 \div 100 = 4.5$ Eggs: $12 \div 2 = 6$ $4 \times 12 = 48$	48	M1 At least one correct comparison between recipe and ingredients M1 At least 3 correct comparisons between recipe and ingredients M1 <i>ft</i> their lowest value selected A1 48 following fully correct working												
Q20a	$5.5 \times 10 = 55km$	55km	M1 5.3 – 5.7cm measured A1 55km (their $5.3 - 5.7 \times 10$ )												
Q20b		035°	M1A1 035°												

Question	Working	Answer	Notes
<b>Q21</b>	$60 \times 4 = 240$ plants 240 in ratio 2:2:1 $2 + 2 + 1 = 5$ , $240 \div 5 = 48$ , $2 \times 48 = 96$ 96:96:48 $96 \times 65 = 6175 = \text{£}62.40$ $96 \times 59 = 5664 = \text{£}56.64$ $48 \times 85 = 4080 = \text{£}40.80$ $62.40 + 56.64 + 40.80 = \text{£}159.84$	£159.84	M1 $60 \times 4 = 240$ plants M1 240 in ratio 2:2:1 = 96:96:48 M1 Attempt to calculate cost of each type of plant M1 Adds their 3 values (£ or pence) A1 cao in £
<b>Q22</b>	Mugs: 6, 12, 18, 24, 30, 36, 42, 48, 54, <b>60</b> , 66, 72,... Spoons: 20, 40, <b>60</b> , 80, 100, ... Hot choc: 15, 30, 45, <b>60</b> , 75, ....	60	M1 Attempt to list multiples of each number or other method for finding <i>LCM</i> A1 cao
<b>Q23</b>	$25 - 9 - 6 = 10$ Pythagoras' theorem $6^2 + 9^2 = 117$ $10^2 = 100$ $117 \neq 100$ so not a right angled triangle	<i>ABC</i> is not a right-angled triangle	M1 $25 - 9 - 6 = 10$ M1 Attempt to use Pythagoras' theorem A1 correct answer from correct reasoning
<b>Q24a</b>		Jess as she has done the most trials	B1 cao
<b>Q24b</b>	$20 \div 6 = 3.33...$	Yes - in 20 rolls, we would expect around 3 6s	A1 cao
<b>Q24c</b>	$1 + 14 + 31 = 46$ $20 + 50 + 200 = 270$ $270 \div 6 = 45$ expected 6s	No - the overall results suggest that the dice is not biased, as we would expect about 45 6s and there were 46	A1 cao

Question	Working	Answer	Notes
<b>Q25</b>		$y$ is 62.5% of $x$	A1 cao
<b>Q26</b>	$\tan(x) = \frac{14}{6}$ $x = \tan^{-1}\left(\frac{14}{6}\right) = 66.80140949$	$66.8^\circ$	M1 $\tan(x) = \frac{14}{6}$ oe seen M1 Attempts $\tan^{-1}\left(\frac{14}{6}\right)$ A1 cao
<b>Q27</b>	$12 \times 8 = 96$ machine hours $96 \div 9 = 10\frac{2}{3}$ $\frac{2}{3}$ hours = $\frac{2}{3} \times 60 = 40$ minutes	10 hours 40 minutes	M1 $12 \times 8 = 96$ machine hours M1 $96 \div 9 = 10\frac{2}{3}$ A1 cao
<b>Q28</b>		$4n + 9$	A1 cao
<b>Q29</b>	$180 - 165 = 15$ $360 \div 15 = 24$	24	M1 $180 - 165 (= 15)$ or $360 \div 15 (= 24)$ seen A1 cao
<b>Q30a</b>		$2.38 \times 10^{-3}$	A1 cao
<b>Q30b</b>		271000	A1 cao
<b>Q30c</b>	$54000 - 3700 = 50300 = 5.03 \times 10^4$	$5.03 \times 10^4$	A1 cao
<b>Q31a</b>		$\begin{pmatrix} 3x - 2 \\ 15 - 2y \end{pmatrix}$	M1 Top row or bottom row correct A1 cao
<b>Q30b</b>	$x + 1 = 4, x = 3$ $5 + y = 3, y = -2$	$x = 3, y = -2$	M1 $x$ or $y$ correct A1 cao
<b>Q32</b>	$(x + b)(x - 7) = x^2 + bx - 7x - 7b$ $7b = 28 \Rightarrow b = 4$ $b - 7 = -3 \Rightarrow a = 3$	$a = 3$ $b = 4$	A1 $a = 3$ or $b = 4$ A1 $a = 3$ and $b = 4$

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