



THIRD SPACE
LEARNING

Mathematics

Paper 3

(Calculator)

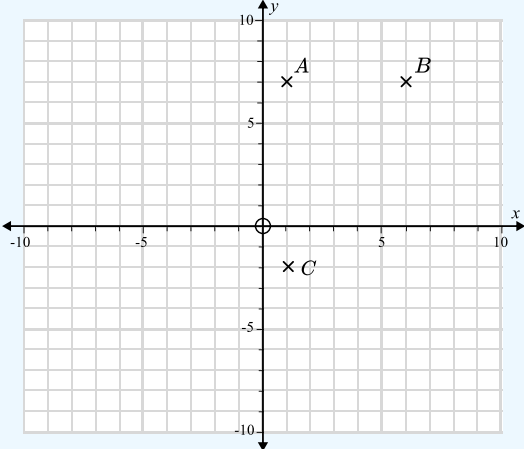
Foundation Tier

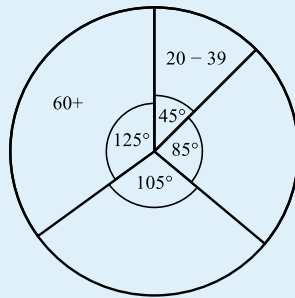
Mark Scheme

AQA GCSE

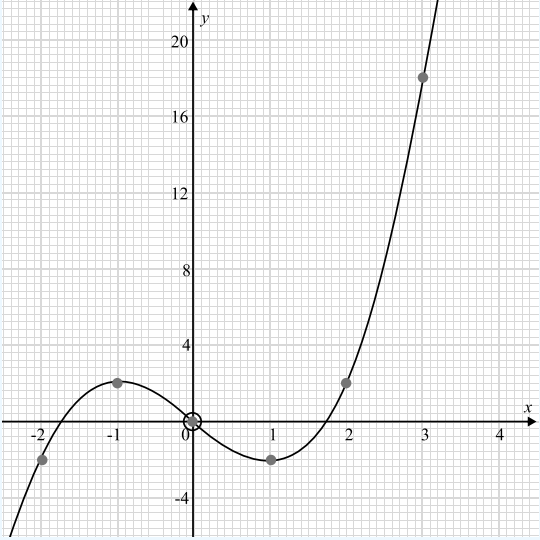
SET 4

Question	Working	Answer	Notes						
Q1	$4 \times 5.5 = 22\text{cm}^2$	22cm^2	A1 cao						
Q2		0	A1 cao						
Q3		4	A1 cao						
Q4		11.05 am	A1 Allow omission of am						
Q5		4.8	A1 cao						
Q6		A rhombus	M1 A quadrilateral with 2 lines of symmetry or 2 acute angles and 2 obtuse angles A1 A rhombus						
Q7	$\frac{14}{20} = \frac{7}{10}$	$\frac{7}{10}$	M1 $\frac{14}{20}$ A1 cao						
Q8	Number of pumpkins: $21 + 55 + 87 = 163$ Number of toffee apples: $64 + 52 + 49 = 165$	Toffee apples	A1 Number of pumpkins 163 A1 Number of toffee apples 165 B1 More toffee apples, following correct working						
Q9	$29 - 8 = 21$ $21 \times 4 = 84$	84	M1 Subtracts 8 M1 Multiplies by 4 A1 cao						
Q10	<table><tr><td>Maia rolls an even number</td><td><i>C</i></td></tr><tr><td>Maia rolls a factor of 6</td><td><i>D</i></td></tr><tr><td>Maia rolls a 7</td><td><i>A</i></td></tr></table>	Maia rolls an even number	<i>C</i>	Maia rolls a factor of 6	<i>D</i>	Maia rolls a 7	<i>A</i>		A1 1 correct A1 2 correct A1 3 correct
Maia rolls an even number	<i>C</i>								
Maia rolls a factor of 6	<i>D</i>								
Maia rolls a 7	<i>A</i>								

Question	Working	Answer	Notes
Q11a		(1, 7)	B1 Correct coordinate
Q11b			B1 Correct coordinate plotted and labelled
Q11c		(6, -2)	M1 (6, a) or (b , -2) A1 cao
Q12	$17 \times 4 = 68$ eggs needed $6 \times 12 = 72$ eggs $72 - 68 = 4$ eggs left over		M1 68 eggs needed or baker has 72 eggs A1 $72 - 68 = 4$ or correct sentence stating 72 is 4 more than 68 oe
Q13	$30:24:54 = 5:4:9$	5:4:9	M1 30:24:54 oe A1 Correct, fully simplified ratio
Q14	$37 + 88 + 112 + 103 = 340$	The angles add up to 340° but the angles in a quadrilateral add up to 360°	M1 Adds all 4 angles B1 Correct conclusion following correct working
Q15	$3.1 \times 7.8 = 24.18$ $8 - 6.8 = 1.2$	20.15	M1 24.18 or 1.2 seen A1 cao

Question	Working	Answer	Notes															
Q16	<table><thead><tr><th>Age</th><th>Frequency</th><th>Angle</th></tr></thead><tbody><tr><td>0 – 19</td><td>21</td><td>105°</td></tr><tr><td>20 – 39</td><td>9</td><td>45°</td></tr><tr><td>40 – 59</td><td>17</td><td>85°</td></tr><tr><td>60 +</td><td>25</td><td>125°</td></tr></tbody></table>	Age	Frequency	Angle	0 – 19	21	105°	20 – 39	9	45°	40 – 59	17	85°	60 +	25	125°		M1 Recognises that <i>angle</i> = 5 × <i>frequency</i> M1 Angle for 20 – 39 = 105° M1 360 – 105 – 45 – 125 = 85° M1 85 ÷ 5 = 17 A1 Pie chart accurately completed
Age	Frequency	Angle																
0 – 19	21	105°																
20 – 39	9	45°																
40 – 59	17	85°																
60 +	25	125°																
Q17a		3600	A1 cao															
Q17b		0.004	A1 cao															
Q18		Enlargement scale factor 2, centre (0, 2)	B1 Enlargement scale factor 2 B1 Centre (0, 2)															
Q19a	4y + 20 – 2y – 8 = 2y + 12	2y + 12	M1 Correctly expands one bracket A1 cao															
Q19b		4(3x – 4)	A1 cao															
Q20		1000mm ³	A1 cao															
Q21	12000 – 10560 = 1440 $\frac{1440}{12000} = 0.12$ 0.12 × 100 = 12%	12%	M1 12000 – 10560 = 1440 M1 $\frac{1440}{12000} = 0.12$ or 0.12 × 100 seen A1 cao															

Question	Working	Answer	Notes														
Q22	$m + n = 4p$ $\frac{m + n}{4} = p$	$p = \frac{m + n}{4}$	M1 Adds n A1 cao														
Q23	$18 \times 2.5 = 45$ Circumference = $\pi \times 45 = 141.3716694$ $1km = 1000m = 100000cm$ $100000 \div 141.3716694 = 707.3553026$	707	M1 Converts from <i>inches</i> to <i>cm</i> M1 Calculates circumference M1 Divides 100000 by circumference A1 cao														
Q24	$12 \times 6 = 72$ machine hours $72 \div 8 = 9$	9 hours	M1 $12 \times 6 = 72$ or $72 \div 8$ seen A1 cao														
Q25a		2	B1 Correct conclusion														
Q25b	$0 \times 4 + 1 \times 7 + 2 \times 10 + 3 \times 6 + 4 \times 3 = 57$ $\frac{57}{30} = 1.9$	1.9	M1 Multiplies number of siblings by frequencies M1 Divides by 30 A1 Accept 1.9 or 2														
Q26a	$(-2)^3 - 3 \times (-2) = -2$ $0^3 - 3 \times 0 = 0$ $3^3 - 3 \times 3 = 18$ <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></tr><tr><td>y</td><td>-2</td><td>2</td><td>0</td><td>-2</td><td>2</td><td>18</td></tr></table>	x	-2	-1	0	1	2	3	y	-2	2	0	-2	2	18	-2, 0, 18	M1 2 values correct A1 All correct
x	-2	-1	0	1	2	3											
y	-2	2	0	-2	2	18											

Question	Working	Answer	Notes
Q26b			<p>M1 At least 4 points plotted correctly</p> <p>A1 All points correct and joined with a smooth curve</p>
Q26c		$x = 2.6$	<p>M1 Line $y = 10$ drawn</p> <p>A1 $[2.4 - 2.8]$</p>
Q27	$\frac{4 - -2}{3 - a} = 2$ $\frac{6}{3 - a} = 2$ $\frac{6}{2} = 3 - a$ $3 = 3 - a$ $a = 0$	$a = 0$	<p>M1 Attempt at $m = \frac{y_2 - y_1}{x_2 - x_1}$ or evidence of another valid method e.g. sketching graph</p> <p>M1 Fully correct substitution, giving $\frac{4 - -2}{3 - a} = 2$ and attempt to solve for a, or correct step of another method</p> <p>A1 $a = 0$</p>
Q28a		<p>This is a reverse percentage question so 80% = £360. 20% of the original is not 20% of the sale price</p>	<p>B1 A correct explanation</p>

Question	Working	Answer	Notes
Q28b	$£612 = 85\%$ $1\% = \frac{612}{85} = 7.2$ $100\% = 7.2 \times 100 = £720$	£720	M1 Finds 1% or 10% A1 cao
Q29a	Exterior angle of regular octagon: $360 \div 8 = 45^\circ$ $HG = GI$ so angle $GIH = 45^\circ$ Angles in a triangle sum to 180° so $180 - 45 - 45 = 90^\circ$		M1 Calculates exterior angle of octagon M1 States angle $GIH = 45^\circ$ with reason A1 $180 - 45 - 45 = 90^\circ$
Q29b	Angle $EHI = 90^\circ$ so angle $EHG = 45^\circ$ Angle $HGF = 135^\circ$ (interior angle of octagon) Angle $HGC = 135 \div 2 = 67.5^\circ$ Angle $y = 180 - 45 - 67.5 = 67.5^\circ$	67.5°	M1 $EHG = 45^\circ$ M1 $HGC = 135 \div 2 = 67.5^\circ$ A1 Angle $y = 180 - 45 - 67.5 = 67.5^\circ$
Q29c	Need length GH $\cos(45) = \frac{GH}{5\sqrt{2}}$ $GH = 5\sqrt{2} \times \cos(45) = 5$ Perimeter $= 8 \times 5 = 40cm$	40cm	M1 Attempt at a method to find length GH (trigonometry or Pythagoras theorem) A1 $GH = 5$ M1 <i>ft</i> their ' 5 ' $\times 8$ A1 cao

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