



Mathematics

Paper 2

(Calculator)

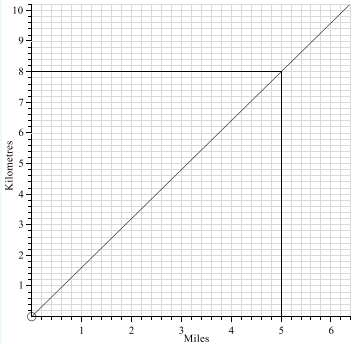
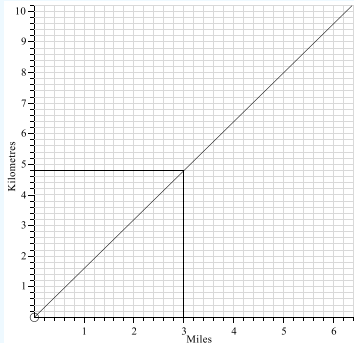
Foundation Tier

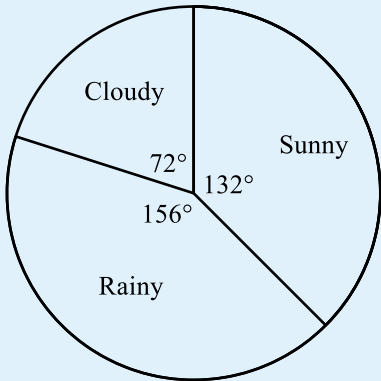
Mark Scheme

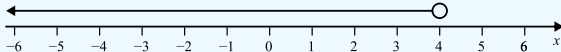
Edexcel GCSE

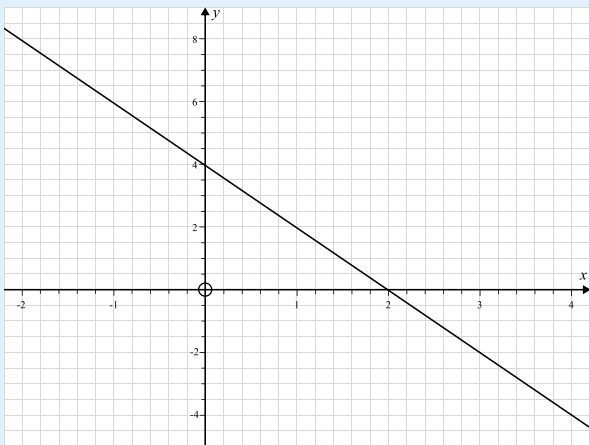
SET 3

Question	Working	Answer	Notes
Q1		70	B1 cao
Q2		3.25kg	A1 cao
Q3		0.34, 0.403, 0.43, 4.03, 4.3	A1 cao
Q4		6.2	A1 cao
Q5		5	A1 cao
Q6a		Hexagon	B1 cao
Q6b		6	B1 cao
Q7	$10 \times 5 = \text{£}50$ $50 - 18 - 6 - 3 = \text{£}23$	£23	M1 $10 \times 5 = \text{£}50$ A1 cao
Q8	p pigs $2p$ sheep $p + 2p = 3p$	$3p$	A1 cao

Question	Working	Answer	Notes
Q9a		5 miles	A1 cao
Q9b		4.8km	A1 cao
Q10a	$9 \times 3 - 2 = 25$	25	A1 cao
Q10b	$85 \div 5 = 17$ $17 - 6 = 11$	+11	M1 $85 \div 5 = 17$ A1 cao
Q11	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 or multipliers 0.8 and 0.85 seen or implied A1 £116 and £110.50 seen B1 Correct conclusion following correct working

Question	Working	Answer	Notes												
Q12	$C = 2 \times 10 + 5 - 3$ $C = 20 - 15 = 5$	$C = 5$	M1 Evidence that 10 and -3 substituted into the expression A1 cao												
Q13i	$\frac{5}{7} = \frac{15}{21}$	$<$	A1 cao												
Q13ii	$2\frac{1}{4} = \frac{9}{4}$	$=$	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: $\frac{1}{2}(8 + 11) \times 7 (= 66.5)$ M1 <i>ft</i> their ' 66.5 ' $\times 2$ or divides their ' 133 ' by 5 A1 cao												
Q15	$11 + 13 + 6 = 30$ $360 \div 30 = 12$ <table><tr><th>Weather</th><th>Number of days</th><th>Angle</th></tr><tr><td>Sunny</td><td>11</td><td>$11 \times 12 = 132^\circ$</td></tr><tr><td>Rainy</td><td>13</td><td>$13 \times 12 = 156^\circ$</td></tr><tr><td>Cloudy</td><td>6</td><td>$6 \times 12 = 72^\circ$</td></tr></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	$6 \times 12 = 72^\circ$													

Question	Working	Answer	Notes																				
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																				
Q17i	$3x - 6 < 6$ $3x < 12$ $x < 4$	$x < 4$	M1 $3x - 6$ or $6 \div 3 = 2$ seen A1 cao																				
Q17ii			M1 <i>ft</i> correctly represents their answer from <i>i</i> A1 cao																				
Q18a	<table><tr><td></td><td>Football</td><td>Swimming</td><td>Athletics</td><td>Total</td></tr><tr><td>Male</td><td>45</td><td>46</td><td>32</td><td>123</td></tr><tr><td>Female</td><td>37</td><td>39</td><td>51</td><td>127</td></tr><tr><td>Total</td><td>82</td><td>85</td><td>83</td><td>250</td></tr></table>		Football	Swimming	Athletics	Total	Male	45	46	32	123	Female	37	39	51	127	Total	82	85	83	250		M1 At least 2 values correct M1 At least 4 values correct A1 All values correct
	Football	Swimming	Athletics	Total																			
Male	45	46	32	123																			
Female	37	39	51	127																			
Total	82	85	83	250																			
Q18b		$\frac{82}{250}$	A1 $\frac{82}{250}$ oe																				

Question	Working	Answer	Notes																
Q19	$60 \times 4 = 240$ 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 (£62.40, £56.64, £40.80) M1 Adds their 3 values (£ or pence) A1 cao in £																
Q20	<table><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>6</td><td>4</td><td>2</td><td>0</td><td>-2</td><td>-4</td></tr></table>	x	-2	-1	0	1	2	3	4	y	8	6	4	2	0	-2	-4		M1 Table of values seen with at least 3 correct OR line intersects y axis at (0,4) M1 At least 3 correct points marked on the grid A1 Fully correct line
x	-2	-1	0	1	2	3	4												
y	8	6	4	2	0	-2	-4												
Q21	Mugs: 6, 12, 18, 24, 30, 36, 42, 48, 54, 60 , 66, 72,.. Spoons: 20, 40, 60 , 80, 100, ... Hot choc: 15, 30, 45, 60 , 75,	60	M1 Attempt to list multiples of each number or other method for finding LCM A1 cao																

Question	Working	Answer	Notes
Q22	$25 - 9 - 6 = 10$ Pythagoras theorem $6^2 + 9^2 = 117$ $10^2 = 100$ $117 \neq 100$ so not a right angled triangle	No	M1 $25 - 9 - 6 = 10\text{cm}$ M1 Attempt to use Pythagoras theorem A1 correct answer from correct reasoning
Q23a		Jess as she has done the most trials	B1 correct conclusion and reason
Q23bi	$20 \div 6 = 3.33\dots$	Yes - in 20 rolls, we would expect around 3 6s	A1 cao
Q23bii	$1 + 14 + 31 = 46$ $20 + 50 + 200 = 270$ $270 \div 6 = 45$ 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 correct conclusion with appropriate working to support
Q24a	$x^2 + 4x - 7x - 28 = x^2 - 3x - 28$	$x^2 - 3x - 28$	M1 $x^2 \pm ax \pm 28$ A1 cao
Q24b		$(x + 3)(x - 3)$	A1 cao
Q25	$\tan(x) = \frac{14}{6}$ $x = \tan^{-1}\left(\frac{14}{6}\right) = 66.80140949$	66.8°	M1 $\tan(x) = \frac{14}{6}$ oe seen M1 Attempts $\tan^{-1}\left(\frac{14}{6}\right)$ A1 cao
Q26	$12 \times 8 = 96$ 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

Question	Working	Answer	Notes
Q27	$8a + 6b = 58$ $9a + 6b = 61.5$ $a = 3.5$ $4 \times 3.5 + 3b = 29$ $14 + 3b = 29$ $3b = 15$ so $b = 5$	$a = 3.5$ $b = 5$	M1 $8a + 6b = 58$ and $9a + 6b = 61.5$ oe with common coefficients of a or b M1 One equation subtracted from the other resulting in an equation in one variable A1 $a = 3.5$ or $b = 5$ A1 $a = 3.5$ and $b = 5$
Q28	$180 - 165 = 15$ $360 \div 15 = 24$	24	M1 $180 - 165 = 15$ or $360 \div 15 (= 24)$ seen A1 cao
Q29a		2.38×10^{-3}	B1 2.38 or 10^{-3} seen A1 cao
Q29b		271000	A1 cao
Q29c	$54000 - 3700 = 50300 = 5.03 \times 10^4$	5.03×10^4	M1 54000 and 3700 or 50300 or 5.03 or 0.37×10^4 or 54×10^3 seen A1 cao
Q30a		$\begin{pmatrix} 3x - 2 \\ 15 - 2y \end{pmatrix}$	M1 Horizontal or vertical component correct A1 cao
Q30b	$x + 1 = 4, x = 3$ $5 + y = 3, y = -2$	$x = 3, y = -2$	M1 x or y correct A1 cao

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