



THIRD SPACE  
LEARNING

# Mathematics

## Paper 2

### (Non-Calculator)

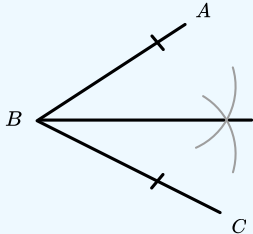
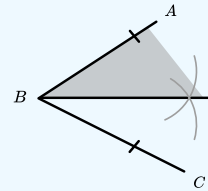
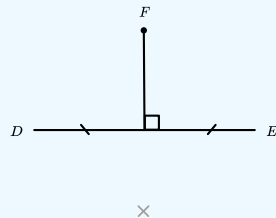
### Foundation Tier

### Mark Scheme

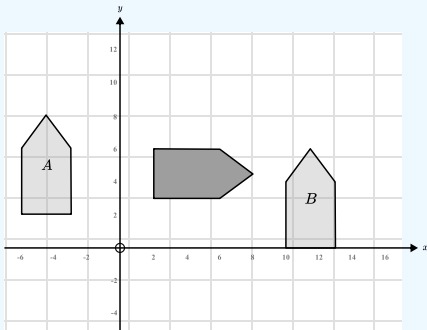
OCR GCSE

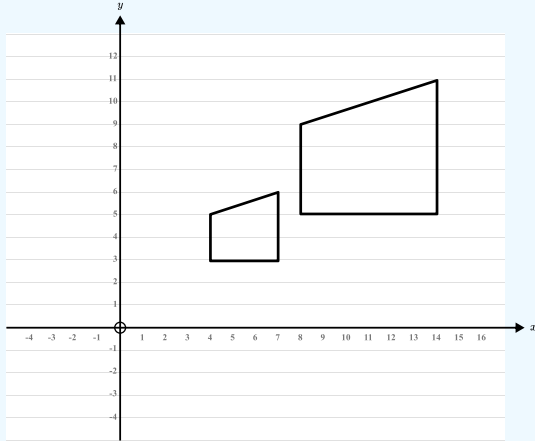
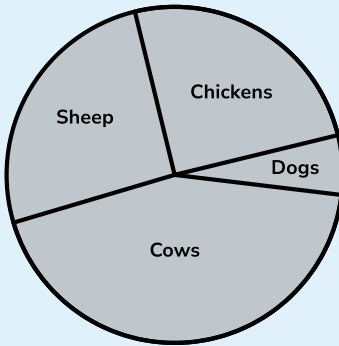
SET 1A

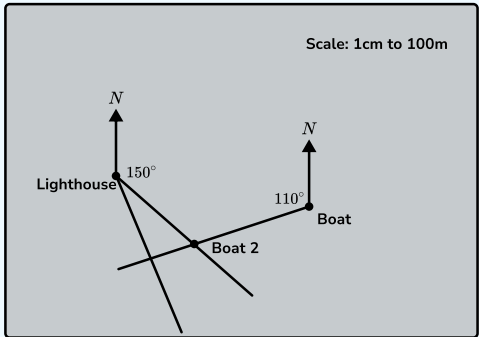
Question	Working	Answer	Notes
Q1a		3	A1 cao
Q1b		-32	A1 cao
Q1c		25	A1 cao
Q2a		Spinner A	B1 cao
Q2b		$\frac{1}{4}$	A1 cao
Q2c		$\frac{3}{5}$	A1 cao
Q3a	$\frac{3}{25} = \frac{12}{100}$	12%	M1 Writing a fraction with a denominator of 100 or dividing 3 by 25 A1 cao
Q3b		1.5	A1 cao
Q4		$2^2 \times 3 \times 5 \times 7$	M1 Prime factor tree resulting in the prime factors 2, 2, 3, 5, 7 A1 cao
Q5a		She has added the numerators and added the denominators	B1 oe
Q5b	$\frac{8}{28} + \frac{7}{28} = \frac{15}{28}$	$\frac{15}{28}$	M1 Writing the fractions over a common denominator A1 cao
Q6a	$\pounds 436.88 - \pounds 67.65 = \pounds 369.23$ $\pounds 369.23 + \pounds 3.87 = \pounds 373.10$	<p><math>\pounds 369.23</math></p> <p><math>\pounds 373.10</math></p>	<p>M1 Attempt to subtract <math>\pounds 67.65</math> from <math>\pounds 436.88</math></p> <p>A1 <math>\pounds 369.23</math></p> <p>A1 <math>\pounds 373.10</math></p>

Question	Working	Answer	Notes
<b>Q6b</b>	$3 \times £61.25 = £183.75$ $£268.82 - £183.75 - £84.40 = £0.67$	Yes	M1 $3 \times £61.25 = £183.75$ M1 Subtracting £183.75 and £84.40 from £268.82 Or adding £183.75 and £84.40 A1 cao with correct working
<b>Q7a</b>			M1 Construction arcs A1 Correct angle bisector
<b>Q7b</b>			A1 Correct shading
<b>Q7c</b>			M1 Construction arc from F intersecting DE M1 Construction arcs A1 Correct perpendicular drawn
<b>Q8a</b>	$500 \div 20 = 25$ $25 \times 13 = 325\text{ml}$ $500 - 325 = 175\text{ml}$	175ml	M1 Finding $\frac{13}{20}$ of 500 or subtracting $\frac{13}{20}$ from 1 M1 325ml or $\frac{7}{20}$ seen A1 cao

Question	Working	Answer	Notes
<b>Q8b</b>	$\frac{13}{20} = 65\%$ 3:1 means $\frac{3}{4}$ orange juice $\frac{3}{4} = 75\%$	Steve	M1 3:1 means $\frac{3}{4}$ orange juice M1 Attempting to convert to common format M1 Three correct values to compare A1 Identifying Steve
<b>Q9</b>	$\frac{1}{2} \times 12 \times 20 = 120\text{m}^2$ 10% of 120 = 12 $120 + 12 = 132\text{m}$ $132 \div 10 = 13.2$ therefore he will need 14 packs $14 \times 80 = \pounds 1120$	£1120	M1 Area of triangle = $\frac{1}{2} \times 12 \times 20$ seen M1 Finding 10% of their area and adding it M1 Their total divided by 10 M1 14 packs identified A1 cao
<b>Q10a</b>	$4(2p + 3) - 5(p - 6) = 8p + 12 - 5p + 30$ $= 3p + 42$		M1 First bracket expanded correctly M1 Either $8p+12-5p+30$ or $8p+12-(5p-30)$ seen A1 cao
<b>Q10b</b>	$4(2p + 3) - 5(p - 6) = 75$ $3p + 42 = 75$ $3p = 33$ $p = 11$	$p = 11$	M1 $3p + 42 = 75$ seen M1 $3p = 33$ A1 cao
<b>Q11a</b>		0.21	A1 cao
<b>Q11b</b>		40.8	M1 A suitable method for division attempted A1 cao
<b>Q12a</b>	$v - u = at$ $\frac{v - u}{t} = a$	$a = \frac{v - u}{t}$	M1 Subtracting u from both sides A1 cao

Question	Working	Answer	Notes
Q12b	$m = \frac{4p^2}{5n}$ $5mn = 4p^2$ $\frac{5mn}{4} = p^2$ $p = \sqrt{\frac{5mn}{4}}$	$p = \sqrt{\frac{5mn}{4}}$	M1 Multiplying by 5n and dividing by 4 M1 Attempting square root A1 cao
Q13a	$8 + 5 + 18 = 31$	$\frac{31}{50}$	M1 Adding frequencies for even numbers M1 Use of 50 as denominator A1 cao
Q13b		Yes it does because there are a lot more sixes than other numbers	B1 Yes B1 Valid reason
Q13c		Repeat the experiment more times	B1 oe
Q14a			M1 Any rotation of 90° clockwise A1 cao

Question	Working	Answer	Notes
<b>Q14b</b>	Mark has counted the number of squares between the two shapes	No, correct answer is $\begin{pmatrix} 16 \\ -2 \end{pmatrix}$	A1 No A1 A correct explanation
<b>Q14c</b>			M1 An enlargement of scale factor 2 M1 At least one vertex correctly placed A1 cao
<b>Q15</b>	Cows: $88 \times 2 = 176^\circ$ Sheep: $41 \times 2 = 82^\circ$ Chickens: $45 \times 2 = 90^\circ$ Dogs: $6 \times 2 = 12^\circ$		M1 Attempt to double values to find angles (or equivalent method) M1 At least 2 angles correct M1 At least two sections of pie chart correct follow through from their angles A1 cao
<b>Q16a</b>	$\frac{7 - 4}{3 - 2} = 3$	$y = 3x - 2$	M1 y intercept correct or M1 Gradient correct A1 cao
<b>Q16b</b>		$y = 2x - 7$	A1 cao

Question	Working	Answer	Notes
<b>Q17a</b>	20:4 000 000	1:200 000	M1 20:4000000 seen A1 cao
<b>Q17b</b>		570 - 600m	A1 cao
<b>Q17c</b>		100°	M1 line drawn between the lighthouse and the boat A1 allow answer between 097° and 103°
<b>Q17d</b>			M1 A line drawn from lighthouse or the boat on a correct bearing A1 cao
<b>Q18a</b>	$3.3 \times 10^4 - 2.9 \times 10^3$ $33000 - 2900 = 30100$ $3.01 \times 10^4$	$3.01 \times 10^4$	M1 Converting to ordinary numbers or converting to 0.29 10 and correctly subtracting A1 cao in standard form
<b>Q18b</b>	London: $9.9 \times 10^6 \div 3.3 \times 10^4 = 3 \times 10^2$ 300 people per police officer Cardiff: $3.6 \times 10^5 \div 3 \times 10^3 = 1.2 \times 10^2$ 120 people per police officer Edinburgh: $5.8 \times 10^5 \div 2.9 \times 10^3 = 2 \times 10^2$ 200 people per police officer	Cardiff	M1 At least one division correct M1 Three correct divisions A1 Cardiff selected

Question	Working	Answer	Notes
<b>Q19ai</b>	$3 \times 8 = 24$ hours of work $24 \div 4 = 6$	6 hours	M1 24 seen A1 cao
<b>Q19aii</b>		24 workers	A1 cao
<b>Q19b</b>	$120 \div 3 = 40$ so 1 worker can sort 40 packages in 8 hours $40 \div 8 = 5$ so 1 worker can sort 5 packages in 1 hour $25 \div 5 = 5$ It would take 1 worker 5 hours to sort 25 packages	5 hours	M1 Dividing 120 by 3 and 5 M1 Dividing 25 by their answer A1 cao
<b>Q20a</b>	$(x+4)(x+2)=35$ $x^2 + 6x + 8 = 35$ $x^2 + 6x - 27 = 0$		M1 $(x+4)(x+2)=35$ A1 at least two more correct steps seen
<b>Q20b</b>	$(x+9)(x-3)=0$ $x=-9$ (invalid) $x=3$ Perimeter: $7+5+7+5=24\text{cm}$	24cm	M1 $x=3$ M1 factoring A1 cao
<b>Q21a</b>	$\sin(30)=0.5$ $\tan(45)=1$	1.5	M1 Either $\sin(30)=0.5$ or $\tan(45)=1$ seen A1 cao
<b>Q21b</b>	$\cos(60)=\frac{x}{8}$ $x=8\cos(60)$ $x=8 \times 0.5$ $x=4\text{cm}$	4cm	M1 $\cos(60)=\frac{x}{8}$ M1 $\cos(60)=0.5$ seen or implied A1 cao



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