



THIRD SPACE
LEARNING

Mathematics

Paper 2

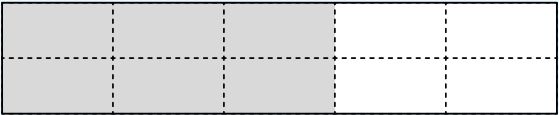
(Non-Calculator)

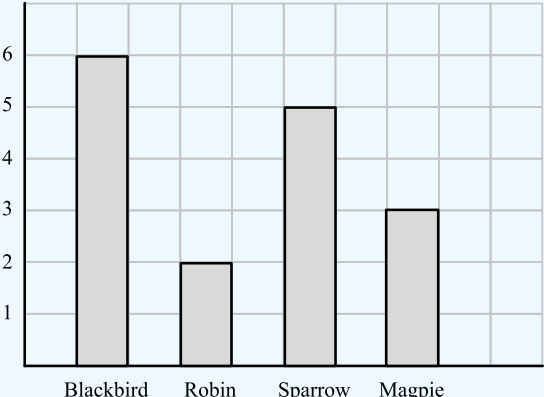
Foundation Tier

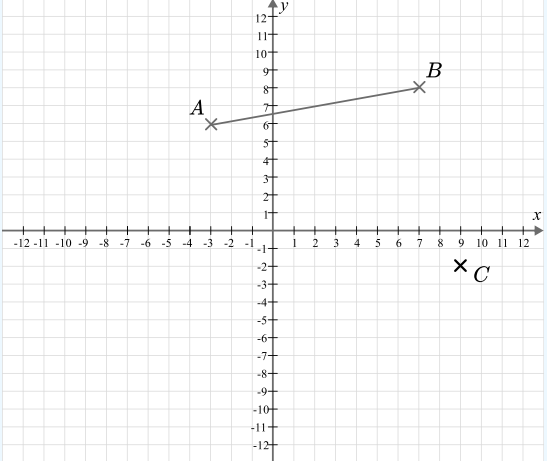
Mark Scheme

OCR GCSE

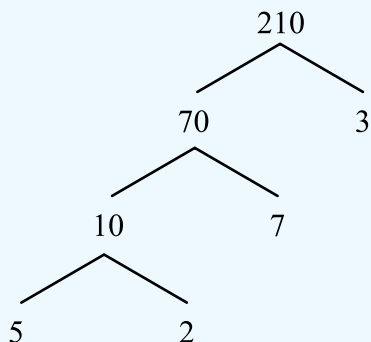
SET 5

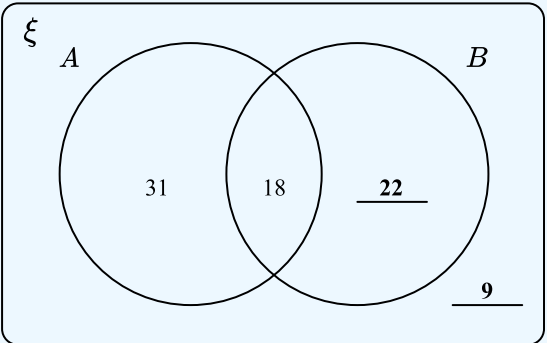
Question	Working	Answer	Notes
Q1a		75%	
Q1b			
Q1c	$10\% = 4$ $70\% = 28$	28	M1 $10\% = 4$ or 0.7×40 seen A1 cao
Q2ai		301	
Q2aia	$20 \times 7 = 140$ $4 \times 7 = 28$ $140 + 28 = 168$	168	M1 Attempt to use grid method, column method or other valid method A1 cao
Q2b	$5 - 3.52 = 1.48$	£1.48	
Q3a		35 centimetres	
Q3b		6000 grams	
Q3c		0.243 litres	
Q4a		5	
Q4b	3 4 5 5 5 6 6 7 9	5	M1 Orders values and attempts to find the middle A1 cao
Q5a		32°	

Question	Working	Answer	Notes															
Q5b		4cm																
Q6a		-40																
Q6b		-17																
Q6c		16																
Q7a	<table border="1"> <thead> <tr> <th>Bird</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Blackbird</td> <td> </td> <td>6</td> </tr> <tr> <td>Robin</td> <td> </td> <td>2</td> </tr> <tr> <td>Sparrow</td> <td> </td> <td>5</td> </tr> <tr> <td>Magpie</td> <td> </td> <td>3</td> </tr> </tbody> </table>	Bird	Tally	Frequency	Blackbird		6	Robin		2	Sparrow		5	Magpie		3		<p>B1 At least 3 rows correct</p> <p>B1 Fully correct</p>
Bird	Tally	Frequency																
Blackbird		6																
Robin		2																
Sparrow		5																
Magpie		3																
Q7b			<p>M1 Labelling bird names on horizontal axis OR a linear scale on the vertical axis</p> <p>M1 At least 2 bars correct ft their frequency table</p> <p>A1 ft their frequencies or tallies in (a).</p>															
Q8a		$n = 9$																
Q8b		$p = 55$																
Q9	$30 - 16 = 14$ $16 : 14$	$8 : 7$	<p>M1 16 : 14</p> <p>A1 cao</p>															

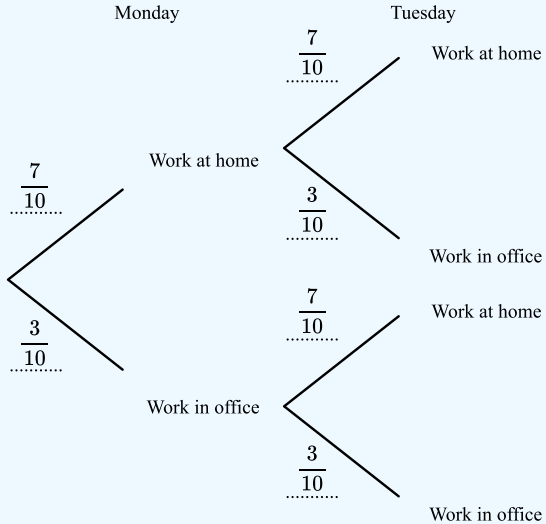
Question	Working	Answer	Notes
Q10a		(2, 7)	
Q10b			
Q10c		(-1, -4)	A1 cao
Q11ai	$\frac{9}{15} + \frac{2}{15} = \frac{11}{15}$	$\frac{11}{15}$	M1 Correct use of a common denominator A1 $\frac{11}{15}$ oe
Q11aii	$\frac{3}{10} \div \frac{7}{20} = \frac{3}{10} \times \frac{20}{7}$ $= \frac{60}{70} = \frac{6}{7}$	$\frac{6}{7}$	M1 $\frac{3}{10} \times \frac{20}{7}$ seen or implied M1 $\frac{60}{70}$ or equivalent unsimplified fraction A1 cao
Q11b	$\frac{4}{5} = 0.8$ $(4.1 - 0.8) \div 11 = 3.3 \div 11$ $= 0.3$	0.3	B1 $\frac{4}{5} = 0.8$ M1 (4.1 - "0.8") ÷ 11 oe A1 cao

Question	Working	Answer	Notes
Q12	$p = 3 \times 5 - 2 \times 12$ $= 15 - 24$ $= -9$	- 9	M1 Substitutes 5 and 12 into the expression A1 cao
Q13a	$83 \times 2.92 \approx 80 \times 3$ $= 240$	240	M1 Rounds at least one value to 1sf A1 cao
Q13b		No because the answer should be close to 240	C1 Correct explanation
Q14a	12 cupcakes = 100g sugar 6 cupcakes = 50g 30 cupcakes = 100 + 100 + 50 = 250g sugar	250g	M1 Correct first step e.g. amount of sugar for 6 or 24 cupcakes A1 cao
Q14b	$450 \div 90 = 5$ lots of cupcakes $7 \div 2 = 3.5$ lots of cupcakes Maximum 3.5 lots of cupcakes $3.5 \times 12 = 42$	42	M1 Divides 450 by 90 or 7 by 2 M1 3.5 lots of cupcakes seen or implied M1 3.5×12 A1 cao
Q15	Perimeter of rectangle $= 10 + 10 + 4 + 4 = 28$ Perimeter of triangle = 14 $14 - 3 = 11$ $11 \div 2 = 5.5$	$x = 5.5$	M1 Perimeter of rectangle = 28 M1 Perimeter of triangle = 14 M1 $14 - 3 = 11$ A1 ($x =$) 5.5 or $\frac{11}{2}$ oe
Q16a	$3 \times 3 \times 3 \times 3 = 81$	81	

Question	Working	Answer	Notes
Q16b		1	
Q16c	$\frac{1}{16} = 2^{\boxed{-4}}$		
Q17a		$10y - 15$	
Q17b	$12x - 28 - 2x + 10$ $= 10x - 18$	$10x - 18$	M1 Both brackets correctly expanded A1 cao
Q17c		$x(x - 7)$	
Q18		Translation $\begin{pmatrix} -6 \\ 1 \end{pmatrix}$	B1 Translation B1 6 left and 1 up or given as a vector
Q19		$2 \times 3 \times 5 \times 7$	M1 Correct prime factors identified A1 cao
Q20	$40\% = 200$ $10\% = 50$ $90\% = 450$	450	M1 Finds 10% A1 cao

Question	Working	Answer	Notes																				
Q21a		<p>22</p> <p>9</p>	<p>B1 cao</p> <p>B1 ft their “22”, provided that their “22” + 31 + 18 < 80</p>																				
Q21b		$\frac{18}{80}$ oe																					
Q22	$g = 3f - 4$ $g + 4 = 3f$ $\frac{g + 4}{3} = f$	$f = \frac{g + 4}{3}$	<p>M1 $g + 4 = 3f$ or $\frac{g}{3} = f - \frac{4}{3}$</p> <p>A1 cao</p>																				
Q23	<table border="1"> <thead> <tr> <th></th> <th>Always true</th> <th>Sometimes true</th> <th>Never true</th> </tr> </thead> <tbody> <tr> <td>$2n$ is odd</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>n^2 is odd</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>$n^3 + n$ is odd</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>$(5n - 2)^2$ is odd</td> <td>✓</td> <td></td> <td></td> </tr> </tbody> </table>		Always true	Sometimes true	Never true	$2n$ is odd			✓	n^2 is odd	✓			$n^3 + n$ is odd			✓	$(5n - 2)^2$ is odd	✓				<p>1 mark for each correct answer</p>
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Q24	$\frac{11}{20}$ of 180 = 99 $L : R = 3 : 2 = 15 : 10$ $R : T = 5 : 4 = 10 : 8$ $L : R : T = 15 : 10 : 8$ $99 \div 33 = 3$ $15 \times 3 = 45$	<p>45</p>	<p>M1 $\frac{11}{20}$ of 180 = 99</p> <p>M1 Multiplies ratios to make R parts the same</p> <p>M1 Their “99” divided by their “33”</p> <p>A1 cao</p>																				

Question	Working	Answer	Notes
Q25	$3.15 \times 10^4 = 31500$ $3.15 \times 10^{-2} = 0.0315$ $3.15 \times 10^{-1} = 0.315$ 3150 0.0315, 0.315, 3150, 31500	3.15×10^{-2} , 3.15×10^{-1} , 3150, 3.15×10^4	M1 Correctly converts at least two values from standard form or converts $3150 = 3.15 \times 10^3$ A1 cao
Q26	$360 = 60\%$ $60 = 10\%$ $600 = 100\%$	£600	M1 $360=60\%$ seen or implied A1 cao
Q27		$\frac{\sqrt{3}}{2}$	
Q28	Pentagon: $\frac{3 \times 180}{5} = 108$ Triangle: $\frac{180}{3} = 60$ $108 + 60 + 60 = 228$ $360 - 228 = 132$	15	M1 Interior angle of pentagon = 108 M1 $108 + 108 + 60 = 228$ A1 Full solution with no errors
Q29	$\frac{5^5 \times 5^{-2}}{5} = \frac{5^3}{5} = 5^2 = 25$	25	M1 Numerator simplified to 5^3 A1 cao
Q30	Area A: $\pi \times (\sqrt{13})^2 = 13\pi$ Area B: $\frac{1}{3} \times \pi \times 6^2 = 12\pi$	A	M1 $\pi \times (\sqrt{13})^2$ or $\pi \times 6^2$ M1 Correctly squares $\sqrt{13}$ and reaches 13π M1 Divides 36π by 3 to get 12π A1 Correct answer from correct working


Question	Working	Answer	Notes
<p>Q31a</p>	$p \times p = \frac{49}{100}$ $p = \sqrt{\frac{49}{100}} = \frac{7}{10}$  <p>The tree diagram shows the probability of working at home or in the office on Monday and Tuesday. On Monday, the probability of working at home is $\frac{7}{10}$ and in the office is $\frac{3}{10}$. On Tuesday, if working at home on Monday, the probability of working at home is $\frac{7}{10}$ and in the office is $\frac{3}{10}$. If working in the office on Monday, the probability of working at home is $\frac{7}{10}$ and in the office is $\frac{3}{10}$.</p>		<p>M1 $p = \sqrt{\frac{49}{100}} = \frac{7}{10}$</p> <p>M1 $P(\text{work in office}) = \frac{3}{10}$</p> <p>A1 Correctly completed tree diagram</p>
<p>Q31b</p>	<p>$P(\text{office, home}): \frac{3}{10} \times \frac{7}{10} = \frac{21}{100}$</p> <p>$P(\text{home, office}): \frac{7}{10} \times \frac{3}{10} = \frac{21}{100}$</p> <p>$\frac{21}{100} + \frac{21}{100} = \frac{42}{100}$</p>	<p>$\frac{42}{100}$ oe</p>	<p>M1 for a correct probability for one day (e.g. “$\frac{3}{10}$” × “$\frac{7}{10}$” or “$\frac{7}{10}$” “$\frac{3}{10}$”)</p> <p>ft their value for p in pt (a)</p> <p>M1 ft their “$\frac{21}{100}$” × 2</p> <p>A1 cao</p>

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