



THIRD SPACE
LEARNING

Mathematics

Paper 3

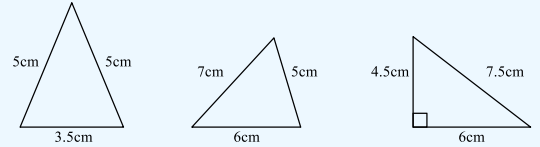
(Calculator)














Foundation Tier

Mark Scheme

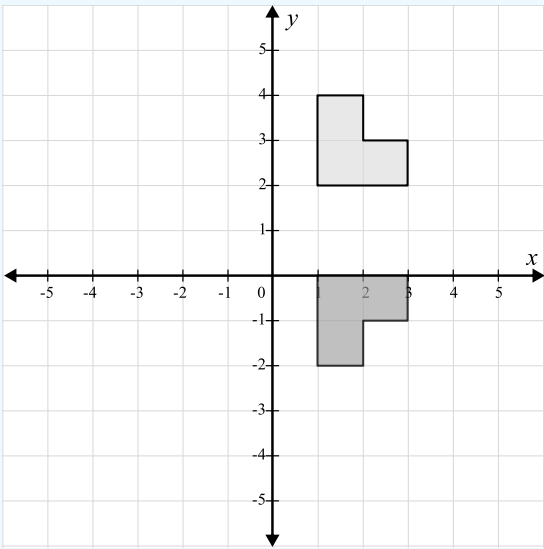
OCR GCSE

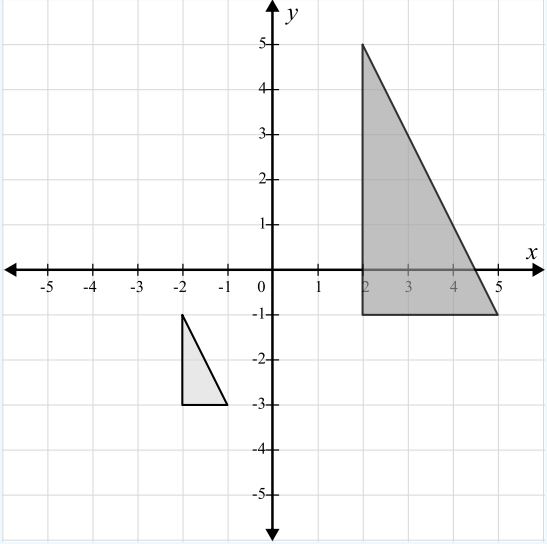
SET 5

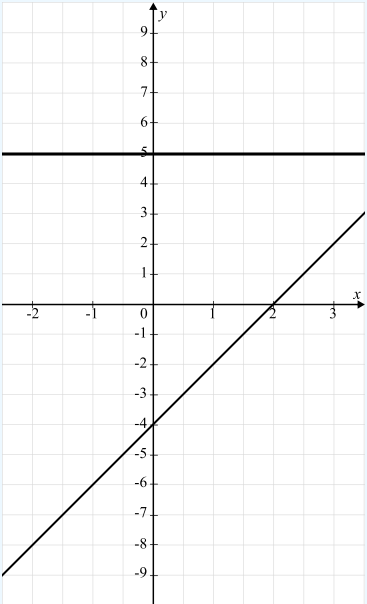
Question	Working	Answer	Notes
Q1a		11.50am	
Q1b		40 minutes	
Q2	 <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 10px; text-align: center;">Isosceles</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 10px; text-align: center;">Scalene</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px 10px; text-align: center;">Right angled</div> </div>		B1 for each correct label
Q3a		35 – 28	
Q3b		32	
Q3ci		$\frac{4}{5}$	
Q3cii	Prime numbers: 2, 3, 5	$\frac{3}{5}$	
Q4a		25cm ²	
Q4b	Perimeter = 24cm	Any rectangle with a perimeter of 24cm	M1 P = 24cm or $l + w = 12$ or $2l + 2w = 24$ A1 Any correct rectangle
Q5	$5.2 \times 80 = 416$ $3.5 \times 80 = 280$	Length 416cm Width 280cm	M1 Correctly measures length or width A1 Multiplies their values by 80 A1 Width correct

Question	Working	Answer	Notes								
Q6	$4 \times 5 = 20$ apples required 4 packs required $4 \times 99\text{p} = \text{£}3.96$ 20 apples requires $20 \times 18 = \text{£}3.60$ Cheaper to buy individual apples	Individual apples	M1 20 apples required or $4 \times 5 = 20$, $4 \times 99\text{p} = \text{£}3.96$ M1 $20 \times 18 = \text{£}3.60$ A1 Correct answer from correct working								
Q7a	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>Owls</td> <td></td> </tr> <tr> <td>Buzzards</td> <td></td> </tr> <tr> <td>Red kites</td> <td></td> </tr> <tr> <td>Ospreys</td> <td></td> </tr> </table> <div style="display: inline-block; vertical-align: middle; margin-left: 20px;"> Key:  = 8 birds </div>	Owls		Buzzards		Red kites		Ospreys			B1 Correct for red kites
Owls											
Buzzards											
Red kites											
Ospreys											
Q7b	$22:28 = 11:14$	11:14	M1 22 and 28 A1 Correct simplified ratio								
Q7c	$\frac{10}{84} = \frac{5}{42}$	$\frac{10}{84}$	M1 10 or 84 seen A1 $\frac{10}{84}$ oe								
Q8		(SBC), (SBT), SBA, SMC, SMT, SMA, PBC, PBT, PBA, PMC, PMT, PMA	B1 At least 8 distinct combinations (including the given two) B1 Exactly 12 distinct combinations (including the given two)								
Q9a		$\frac{2}{24}$ or any equivalent fraction	B1 Any equivalent fraction								
Q9b	$\frac{1}{12} = \frac{2}{24}$ $\frac{2}{12} = \frac{4}{24}$	$\frac{3}{24}$	B1 Any fraction that is greater than $\frac{1}{12}$ and $\frac{2}{12}$								

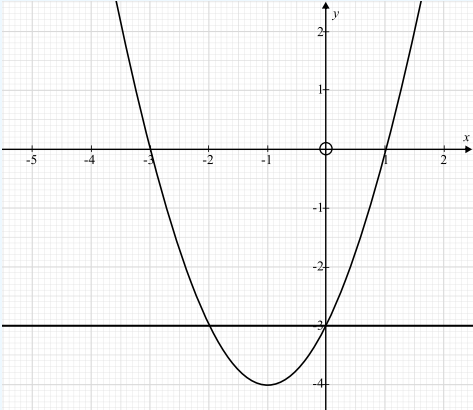
Question	Working	Answer	Notes
Q10a	3 kilograms = 3000 grams $400:3000 = 4:30 = 2:15$	2:15	M1 3 kilograms = 3000 grams (seen or implied) A1 Correct, simplified ratio
Q10b	$8 \div 5 = 1.6$ $8:5 = 1:1.6$	$n = 1.6$	
Q11a	$48 \div 8 = 6$ $6 + 5 = 11$	11	M1 Divides by 8 and adds 5, in either order A1 cao
Q11b		$y = 7x + 3$	B2 for $y = 7x + 3$ (Award B1 for $y = 7x + k$ where $k \neq 0$ or 3 or for the expression $7x + 3$)
Q12a	Annie added 4 and -3 before squaring Rebecca calculated -3 squared as -9		B1 B1
Q12b	$4 + (-3)^2 = 4 + 9 = 13$	13	B1
Q13a	$12x - 8 = 52$ $12x = 60$ $x = 5$	$x = 5$	M1 Correctly expands brackets or divides by 4 A1 cao
Q13b	$4y + 1 = 22$ $4y = 21$ $y = 5.25$	$y = 5.25$	M1 Multiplies by 11 A1 cao
Q14	$V = 6.3 \times 2.7 \times 3.1 = 52.731\text{cm}^3$	52.7cm^3	M1 $6.3 \times 2.7 \times 3.1$ A1 cao

Question	Working	Answer	Notes
Q15a	12 pages per 20s = 36 pages per min $36 \times 8 = 288$ 11 pages per 15s = 44 pages per min $44 \times 10 = 440$ $288 + 440 = 728$	728	M1 12 pages per 20s = 36 pages per min M1 $36 \times 8 = 288$ M1 11 pages per 15s = 44 pages per min $44 \times 10 = 440$ A1 cao
Q15b	$27000 \div 2000 = 13.5$ $13.5 \times 63 = \text{£}850.50$ $27000 \div 1500 = 18$ $18 \times 32 = \text{£}576$ $850.50 - 576 = \text{£}274.50$	£274.50	M1 $27000 \div 2000$ or $27000 \div 1500$ M1 $13.5 \times 63 = \text{£}850.50$ or $18 \times 32 = \text{£}576$ M1 their 850.50 – their 576 dependent on previous M marks A1 cao
Q16a			M1 Rotation 90° A1 Fully correct

Question	Working	Answer	Notes
<p>Q16b</p>			<p>M1 Enlargement scale factor 3 A1 Fully correct</p>
<p>Q17</p>	<p>2% of 125 000 = 2500 5% of 80 000 = 4000</p> <p>Total stamp duty = 2500 + 4000 = £6500 £330 000 + £6500 + £2000 = £338 500</p> <p>Yes he can afford it</p>	<p>Yes</p>	<p>M1 2% of 125 000 = 2500 M1 5% of 80 000 = 4000 M1 Total stamp duty = 2500 + 4000 = £6500 A1 Correct conclusion from correct working</p>

Question	Working	Answer	Notes
<p>Q18a</p>			<p>M1 At least 2 correct points plotted or stated Or a line through (0, -4) Or a line with gradient 2 M1 A line through at least 3 correct points Or all points plotted but not joined A1 cao</p>
<p>Q18bi</p>		<p>-4</p>	
<p>Q18bii</p>	<p>$2 \times 30 - 4 = 56$</p>	<p>The line will pass below the point (30, 58) as it will pass through (30, 56)</p>	<p>M1 $2 \times 30 - 4 = 56$ A1 Correct statement supported by working</p>
<p>Q18biii</p>		<p>$y = 2x + \dots\dots$</p>	<p>B1 Any line with gradient 2</p>
<p>Q19a</p>	<p>$\frac{16}{40} \times 220 = 88$</p>	<p>88</p>	<p>M1 $\frac{16}{40}$ seen A1 cao</p>
<p>Q19b</p>		<p>We have assumed that the sample is representative of all pupils</p>	
<p>Q20a</p>		<p>41° Corresponding angles are equal</p>	<p>B1 41° B1 Corresponding angles are equal</p>

Question	Working	Answer	Notes
Q20b		No because angles DCG and CGH are co-interior so they add up to 180°	B1 No B1 Correct explanation
Q21a		q^{12}	
Q21b		$2p^7$	M1 2 or 7 correct A1 cao
Q21c	$4 \times 3 = 12$ $2^3 = 8$	$a = 4$ $b = 8$	B1 $a = 4$ B1 $b = 8$
Q22a	$1 - 0.7 = 0.3$	0.3	
Q22b	$200 \times 0.7 = 140$	140	
Q23a		3.4×10^{-5}	
Q23b		27100	
Q23c	$\frac{3 \times 10^8}{4.5 \times 10^9} = \frac{3}{45} = \frac{1}{15}$	$\frac{1}{15}$	B1 Fully simplified fraction
Q24	$x^2 - 6x - 91 = 0$ $(x - 13)(x + 7) = 0$ $x = 13$ or $x = -7$	$x = 13$ or $x = -7$	M1 Attempt to factorise $x^2 - 6x - 91$ reaching $(x + \dots)(x - \dots)$ M1 $(x - 13)(x + 7)$ A1 cao
Q25a	$5^2 + 8^2 = 89$ $\sqrt{89} = 9.433981132$	9.43cm	M1 $5^2 + 8^2 = 89$ A1 cao


Question	Working	Answer	Notes
<p>Q25b</p>	<p>Area of semi circle: $\frac{1}{2} \times \pi \times \left(\frac{\sqrt{89}}{2}\right)^2$ $= \frac{1}{2} \times \pi \times 4.716(99\dots)^2$ $= 34.950(21827\dots)$ Area of triangle: $\frac{1}{2} \times 5 \times 8 = 20$ Shaded area: $34.950(21827\dots) - 20 = 14.950(21827\dots)$</p>	<p>34.95cm²</p>	<p>M1 ft their radius in (a) = “9.433(981132...)” ÷ 2 M1 ft $\frac{1}{2} \times \pi \times$ their r squared M1 $\frac{1}{2} \times 5 \times 8 = 20$ A1 cao</p>
<p>Q26</p>	<p>$\frac{3a + 5a + 2 + 2a + 8}{3} = 120$ $10a + 10 = 360$ $10 = 350$ $a = 35$ Smallest value: $2 \times 35 + 8 = 78$</p>	<p>78</p>	<p>M1 Sets up equation or multiplies 120 by 3 A1 $a = 35$ M1 Substitutes a into at least one expression A1 cao</p>
<p>Q27</p>		<p>Probabilities should add up to 1</p>	
<p>Q28a</p>		<p>(-1, -4)</p>	
<p>Q28b</p>		<p>$x = -2$ and $x = 0$</p>	<p>M1 Line drawn at -3 or indication of reading from graph at $y = -3$ A1 Both correct solutions</p>

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