

GCSE MATHEMATICS  
 MARK SCHEME – Specimen Paper – Unit 3 (Terminal) Higher Section A  
 Issue 2

Questions	Working	Answer	Mark	Notes
<b>1</b>	$\frac{3}{6} + \frac{2}{6}$	$\frac{5}{6}$	<b>3</b>	M1 for using 6ths oe  M1 for $\frac{3}{6}$ and $\frac{2}{6}$ or $\frac{10}{12}$  A1 for $\frac{5}{6}$ cao
<b>2</b>	10% of £60 = £6 5% of £60 = £3  $2\frac{1}{2}\%$ of £60 = £1.50  £60 + £10.50	£70.50	<b>3</b>	M1 for $17\frac{1}{2}\%$ of £60    M1ft for adding their $17\frac{1}{2}\%$  A1 cao
<b>3 (a)</b>  <b>(b)</b>		48	<b>2</b>  <b>2</b>	M1 for realising $6 \times 10 = 60$ so $8 \times 6$ A1 for 48 B2 for connecting (45, 20) to (65, 0) (B1 for connecting (30, 20) to (50, 0))
<b>4</b>	$10a + 14 + 6a - 12 = 58$ $16a + 2 = 58$ $16a = 56$ $a = 3.5$ length = $5 \times 3.5 + 7$	24.5	<b>4</b>	M1 for forming equation M1 for $16a + 2 = 56$ A1 for $a = 3.5$ B1 for length = 24.5
<b>5</b>	$570 \div 50 = 11.4$	12	<b>2</b>	M1 for $570 \div 50$ A1 cao
<b>6</b>	$70 \div 5 \times 2$ $70 \div 5 \times 3$	28, 42	<b>3</b>	B3 for both correct B2 for one correct B1 for $70 \div 5$ seen

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<b>7</b> (a)	$2\frac{11}{12} \div 1\frac{7}{8} = \frac{35}{12} \div \frac{15}{8}$	$\frac{14}{9}$ or $1\frac{5}{9}$	<b>3</b>	M1 for converting to 12 <sup>th</sup> s and 8ths M1 for reversing one fraction and multiplying A1 cao
	$\frac{35}{12} \div \frac{15}{8} = \frac{35 \times 8}{12 \times 15} = \frac{14}{9} = 1\frac{5}{9}$			
(b)	$1\frac{2}{5} + 2\frac{3}{7} = \frac{7}{5} + \frac{17}{7}$	$3\frac{29}{35}$	<b>3</b>	M1 for converting to 5 <sup>th</sup> s and 7ths M1 for cross-multiplying A1 cao
	$\frac{7}{5} + \frac{17}{7} = \frac{49+85}{35} = \frac{134}{35}$			
<b>8</b> (a)	Reflection in $x = -1$		<b>2</b>	M1 for any reflection in a line parallel to $x = -1$ A1 for correct position
	(b)			
<b>9</b>		$m = \frac{1}{2}$ $c = 7$	<b>2</b>	B1 B1
<b>10</b>		3-D sketch	<b>2</b>	B1 for cross-section correct B1 for 3-D image
<b>11</b>			<b>6</b>	B1 for line 5 cm from house and parallel to house B1 for angle bisector of top LH corner B1 for accuracy $45 \pm 2^\circ$ B1 for circular arc center top RH corner B1 for accuracy $\pm 2$ mm B1 for shading combined region

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<b>12</b>	$50a + 60b = 730$ [1] $400a + 750b = 8000$ [2] Mult eqn [1] by 8 $400a + 480b = 5840$ $400a + 750b = 8000$ Subtract $270b = 2160$ $b = 8$ $50a + 480 = 730$ $a = 250/50$	$A = 5$ $B = 8$	<b>5</b>	B2 for both equations (B1 for 1 equation correct)  M1 for isolating $a$ or $b$ A1 for one value correct A1 for second value correct
<b>13</b>	$200 = \frac{k}{25}$ $k = 5000$ $L = 50$ $50 = \frac{5000}{d^2}$ $d^2 = 100$	10	<b>4</b>	M1 for $200 = \frac{k}{25}$ A1 for $k = 5000$  M1 for $50 = \frac{5000}{d^2}$ A1 for 10

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<b>14</b>	<p>(i) <math>PS = \frac{1}{2} (\mathbf{q} - \mathbf{p})</math></p> <p><math>OS = \mathbf{p} + \frac{1}{2} (\mathbf{q} - \mathbf{p})</math></p> <p>(ii) <math>\vec{RS} = \vec{RP} + \vec{PS}</math></p> <p><math>\vec{RS} = \frac{1}{2} \mathbf{p} + \frac{1}{2} (\mathbf{q} - \mathbf{p})</math></p> <p><math>\vec{RS} = \frac{1}{2} \mathbf{q}</math></p> <p><math>\vec{OQ} = \mathbf{q}</math></p> <p>Therefore RS is parallel to <math>OQ</math></p>	$= \frac{1}{2} (\mathbf{p} + \mathbf{q})$	<b>3</b>	<p><math>\vec{PS} = \frac{1}{2} (\mathbf{q} - \mathbf{p})</math></p> <p>M1 for <math>\vec{RS} = \frac{1}{2} \mathbf{p} + \frac{1}{2} (\mathbf{q} - \mathbf{p})</math></p> <p>A1 for <math>\frac{1}{2} (\mathbf{p} + \mathbf{q})</math></p> <p>B1 for <math>\vec{RS} = \frac{1}{2} \mathbf{q}</math> and <math>\vec{OQ} = \mathbf{q}</math></p> <p>B1 for RS parallel to <math>OQ</math></p>
<b>15</b>	<p><math>2(x - 1) + 3(x + 1) = 5</math></p> <p><math>2x - 2 + 3x + 3 = 5</math></p> <p><math>5x + 1 = 5</math></p> <p><math>5x = 4</math></p>	$x = 0.8$	<b>4</b>	<p>M2 for <math>2(x - 1) + 3(x + 1) = 5</math>                      (M1 if only one expression correct)</p> <p>M1 for <math>5x + 1 = 4</math></p> <p>A1 for 0.8 oe</p>
<b>16</b>	<p><math>(-3, 0), (-1, 0), (1, 0)</math></p> <p><math>(-6, 0), (-4, 0), (-2, 0)</math></p>		<b>1</b> <b>1</b>	<p>B1 cao</p> <p>B1 cao</p>