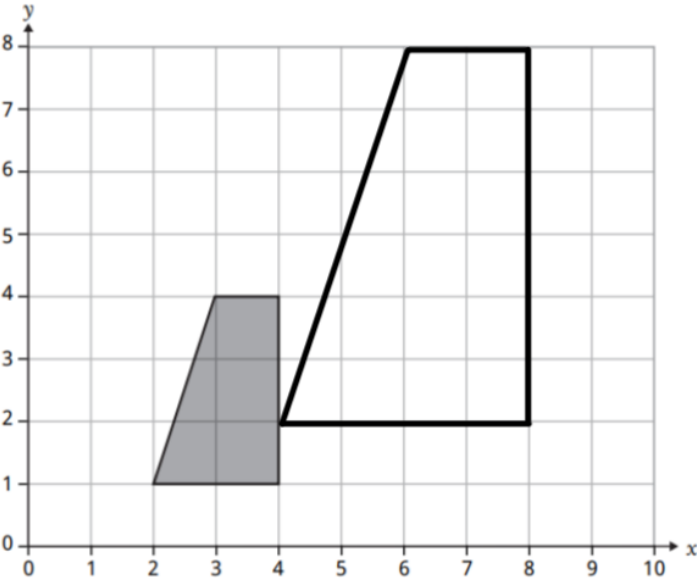


# Year 10 Autumn Higher Calculator Paper Mark Scheme

Question	Answer	Marks	Notes and guidance
1a	41.8137931	1	
1a	40	1	
2	$x = 22.75$	2	Award 1 mark for correct first step. $0.4x = 9.1$ or $x - 4.5 = 18.25$
3	£488.25	3	Award 1 mark for finding the total price of the boxes Award 1 mark for full method to find 93% of a number e.g. multiply by 0.93 or find 7% and subtract
4	£7.94 or €8.65	3	Award 1 mark for converting either €25 to pounds or for converting £15 euros Award 2 <sup>nd</sup> mark for attempting to subtract two values in the same currency
5a	7.2	1	
5b	625	1	
6a	0.8	1	
6b	60	2	Award 1 mark for correct method e.g. $0.2 \times 300$

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7		3	<p>Award 2 marks for any fully correct enlargement by scale factor 2 from any centre, or at least two correct points</p> <p>Award 1 marks for any fully correct enlargement by any scale factor except 1</p>
8a	15.6 (cm)	2	Award 1 mark $12 \div 5$ , 2.4 or $6.5 \div 5 \times 12$ seen
8b	7.5 (cm)	2	Award 1 mark for $5 \div 12$ , 0.4166... or $18 \div 12 \times 5$ seen
9	<p><math>107^\circ</math> with reasoning e.g.  <math>\angle AQR = \angle CRS</math> because corresponding angles are equal  <math>\angle QRS = 107^\circ</math> because angles on a straight line sum to <math>180^\circ</math></p>	3	<p>Award 3 marks for correct answer with any completely correct chain of reasoning</p> <p>Award 2 marks for correct answer without reasons – could be on diagram</p> <p>Award 1 mark for working one 1 relevant angle <math>\angle RQB</math>, <math>\angle QRC</math>, <math>\angle QRD</math> – could be on diagram</p>
10a	4.36 (cm)	2	Award 1 mark for $\sin 43 = \frac{PQ}{6.4}$ or equivalent

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10b	20.6 (°)	2	Award 1 mark for $\tan x = \frac{4.5}{12}$ or equivalent Award full marks if rounded correctly with correct units
11	$x = 2, y = 1$	2	Award 1 mark for either $x$ or $y$ correct
12a	$\frac{9}{16}$	1	
12b	36 cm	2	Award 1 mark for using the scale factor $\frac{9}{16}$ to find the area of the smaller square, or for finding the scale factor of the lengths is $\frac{3}{4}$
13	Any three different pairs from DEC and BEA AED and CEB DBC and BDA ADC and ABC	2	Award 1 mark for two correct pairs.  Letters can be in any order.
14	9.11 (cm)	3	Allow $\sqrt{83}$ Award 2 marks for $\sqrt{7^2 + 3^2 + 5^2}$ OR Award 1 mark for $\sqrt{7^2 + 3^2}$ Award 2 <sup>nd</sup> mark for $\sqrt{75^2 + 58}$ (or their 58)

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15	$\{x: -3 < x < 5\}$ , with working	3	<p>Award 1 mark for solving <math>-10 &lt; 3x - 1</math></p> <p>Award 1 mark for solving <math>3x - 1 &lt; 14</math></p> <p>Award 3<sup>rd</sup> mark only if both inequalities solved and correct solution set identified.</p>
16	$x = 1, -3$ $y = 3, -1$	4	<p>Award 1 mark for obtaining an equation in either <math>x</math> or <math>y</math> only.</p> <p>Award 2<sup>nd</sup> mark for correct method for solving quadratic equation</p> <p>Award 3<sup>rd</sup> mark for either both <math>x</math> values or both <math>y</math> values</p> <p>Award last mark for both pairs correct.</p> <p>Special case – one pair found by trial and improvement scores 1 out of 4</p>
17	7.47 (cm)	4	<p>Award 1 mark for substituting values into cosine rule and attempting to find one of the angles in the triangle</p> <p>Award 2<sup>nd</sup> mark for finding <math>64.103\dots^\circ</math></p> <p>Award 3<sup>rd</sup> for using <math>\sin 64.1\dots = \frac{x}{8.3}</math></p> <p>Award final mark for final answer to 3 significant figures or better.</p>