

UNIT 2: CALCULATOR-ALLOWED, HIGHER TIER

GENERAL INSTRUCTIONS for MARKING GCSE Mathematics

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2. Marking Abbreviations

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cao = correct answer only

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Anything given in brackets in the marking scheme is expected but, not required, to gain credit.

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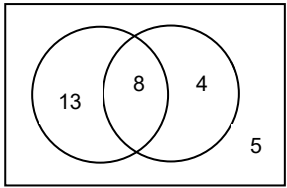
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GCSE Mathematics Unit 2: Higher Tier	Marks	Comments
1. Total of interior angles $5 \times 180(^{\circ})$ = 900(^{\circ}) 900 – sum of 4 angles given (594^{\circ}) (=306) 		

GCSE Mathematics Unit 2: Higher Tier	Marks	Comments
<p>6. Sight of (Perimeter of bed A=) $2x + 2y = 18$ AND (Perimeter of bed B=) $4x + 2y + 6 = 34$ or equivalent Correct method to solve equations simultaneously. $x = 5$ $y = 4$ (Area of B =) 10×7 $= 70(\text{m}^2)$</p>	<p>B1 M1 A1 A1 M1 A1 6</p>	<p>F.T. 'their equations' if of equivalent difficulty. Both values consistent with 'their equations'. F.T. 'their derived values for x and y'. $2x \times (y + 3)$</p>
<p>7. $(x - 5)(x + 4)$ $x = 5$ AND $x = -4$</p>	<p>B2 B1 3</p>	<p>B1 for $(x \dots 5)(x \dots 4)$. Strict F.T. from their brackets</p>
<p>8 (a) $(0, 2)$ (b) 7 units (c) $y = \frac{-x}{7} + 3$</p>	<p>B1 B1 B1 3</p>	
<p>9(a) $AD = 16 \times \sin 56^\circ$ $= 13.2(64\dots)(\text{cm})$ OR $13.3(\text{cm})$ (b) $(EC =) 9.7(\dots)$ $\tan x = \frac{9.7(\dots)}{15}$ $x = 32.9\dots(^{\circ})$ or $33(^{\circ})$ Organisation and communication Accuracy of writing</p>	<p>M2 A1 B1 M1 A1 OC1 W1 8</p>	<p>M1 for $\sin 56^\circ = AD/16$ C.A.O. Allow 13 from correct work but penalise final answer -1 for premature approximation. F.T. 23 - 'their AD'. F.T. 'their EC'</p>
<p>10.(a) $\frac{b-a}{ab} = \frac{1}{c}$ $c = \frac{ab}{b-a}$ (b) $x = \{-4 \pm \sqrt{4^2 - 4 \times 3 \times -18}\} / 2 \times 3$ $= [-4 \pm \sqrt{232}] / 6$ $x = 1.87$ and $x = -3.21$</p>	<p>B1 B1 M1 A1 A1 5</p>	<p>Allow one slip in substitution in correct formula. C.A.O.</p>
<p>11(a) $AP = CR$ AND $AS = CQ$ $\hat{SAP} = \hat{QCA}$ (So triangles are congruent because of) SAS (b) Rhombus because of equal sides.</p>	<p>B1 B1 B1 B1 4</p>	<p>With reference to mid-points. With reference to 90°. Must refer to equal sides.</p>
<p>12. $\frac{x}{360} \times \pi \times r^2 = r^2$ $x = \frac{360}{\pi}$ $= 114(.5\dots^{\circ})$ or $115(^{\circ})$</p>	<p>M1 A1 A1 3</p>	<p>Accept their symbol or word for 'r'.</p>

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<p>13 (a) $x(x+6) - x(x-3)$ as a <u>numerator</u>.</p> <p>$(x-3)(x+6)$ as a <u>denominator</u>.</p> <p>$9x / (x-3)(x+6)$</p> <p>(b) $(7x+10)(7x-10)$ $2(7x+10)$ $\frac{(7x-10)}{2}$</p>	<p>M1</p> <p>M1</p> <p>A1</p> <p>B2</p> <p>B1</p> <p>B1</p> <p>7</p>	<p>Accept intention of brackets when working not shown, e.g. $x^2 + 6x - x^2 - 3x$.</p> <p>C.A.O. If $(x-3)(x+6)$ expanded, must be correct. If M1, M1, A1 awarded penalise further incorrect work -1. If no marks then SC1 for $9x$.</p> <p>B1 for $(7x \dots 10)(7x \dots 10)$</p> <p>F.T. provided no more than 1 previous error and provided simplification required.</p> <p>Mark final answer. Accept $3 \cdot 5x - 5$</p>
<p>14(a)</p>  <p>(b) $8/21$</p>	<p>B2</p> <p>B2</p> <p>4</p>	<p>For all correct. B1 for two or three correct.</p> <p>F.T. their complete Venn diagram. B1 for a numerator of 8 in a fraction < 1. B1 for a denominator of 21 in a fraction < 1.</p>
<p>15 (a) $\frac{1}{\sqrt{3}}$</p> <p>(b) $\frac{-\sqrt{3}}{2}$</p> <p>(c) $y = ax^3 + b$</p>	<p>B1</p> <p>B1</p> <p>B1</p> <p>3</p>	
<p>16. Sine curve</p> <p>Correct sine curve with 2, 3 and 4 shown on the y-axis and 0°, 180° and 360° shown or implied.</p>	<p>M1</p> <p>A1</p> <p>2</p>	<p>Intention to sketch a portion of a sine curve with minimum period of 360°.</p>
<p>17. Use of cosine rule with triangle ABC AND $\frac{1}{2}ab \sin C$ with triangle ACD.</p> <p>$AC^2 = 8 \cdot 8^2 + 7 \cdot 2^2 - 2 \times 8 \cdot 8 \times 7 \cdot 2 \times \cos 84$ $AC = 10 \cdot 77(\dots)(\text{cm})$</p> <p>(Area ACD =) $\frac{1}{2} \times 18 \cdot 6 \times AC \times \sin 47$ $= 73 \cdot 2(6 \dots)(\text{cm}^2)$</p>	<p>S1</p> <p>M1</p> <p>A2</p> <p>M1</p> <p>A1</p> <p>6</p>	<p>Or alternative full strategy.</p> <p>A1 for $AC^2 = 116(\cdot 03\dots)$</p> <p>F.T. their derived AC</p>
<p>18.(a) 14</p> <p>(b) $6/20 \times 5/19$ $0 \cdot 078\dots$ Statement that this is less than 8%</p> <p>(c) NO and use of $0 \cdot 3 \times 0 \cdot 3$ or equivalent.</p>	<p>B1</p> <p>M1</p> <p>A1</p> <p>A1</p> <p>E1</p> <p>5</p>	<p>Accept explanation based on large sample size.</p>

UNIT 2: CALCULATOR-ALLOWED, INTERMEDIATE TIER

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