

Trigonometric Ratios- Mark Scheme

May 2019 Mathematics Advanced Paper 1: Pure Mathematics 1

1.

Question	Scheme	Marks	AOs
6 (a)	Uses $18\sqrt{3} = \frac{1}{2} \times 2x \times 3x \times \sin 60^\circ$	M1	1.1a
	Sight of $\sin 60^\circ = \frac{\sqrt{3}}{2}$ and proceeds to $x^2 = k$ oe	M1	1.1b
	$x = \sqrt{12} = 2\sqrt{3}^*$	A1*	2.1
		(3)	
(b)	Uses $BC^2 = (6\sqrt{3})^2 + (4\sqrt{3})^2 - 2 \times 6\sqrt{3} \times 4\sqrt{3} \times \cos 60^\circ$	M1	1.1b
	$BC^2 = 84$	A1	1.1b
	$BC = 2\sqrt{21}$ (cm)	A1	1.1b
		(3)	
			(6 marks)

(a)

M1: Attempts to use the formula $A = \frac{1}{2} ab \sin C$.

If the candidate writes $18\sqrt{3} = \frac{1}{2} \times 5x \times \sin 60^\circ$ **without** sight of a previous correct line then this would be M0

M1: Sight of $\sin 60^\circ = \frac{\sqrt{3}}{2}$ or awrt 0.866 and proceeds to $x^2 = k$ oe such as $px^2 = q$

This may be awarded from the correct formula or $A = ab \sin C$

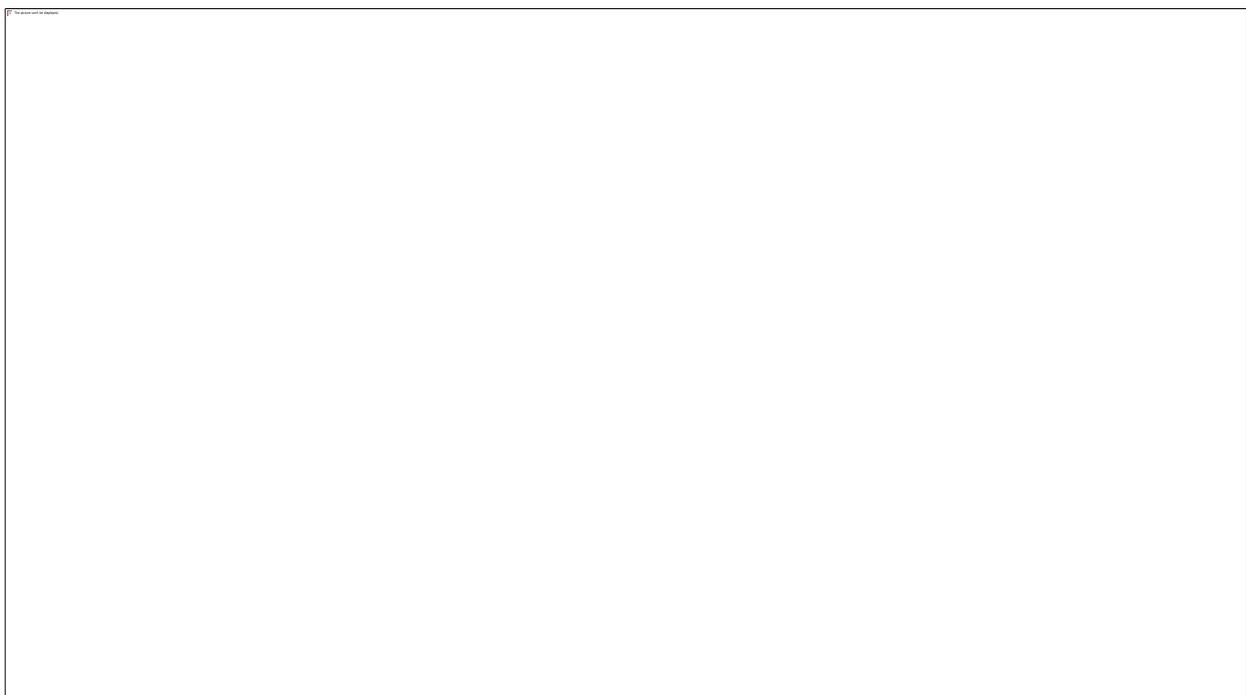
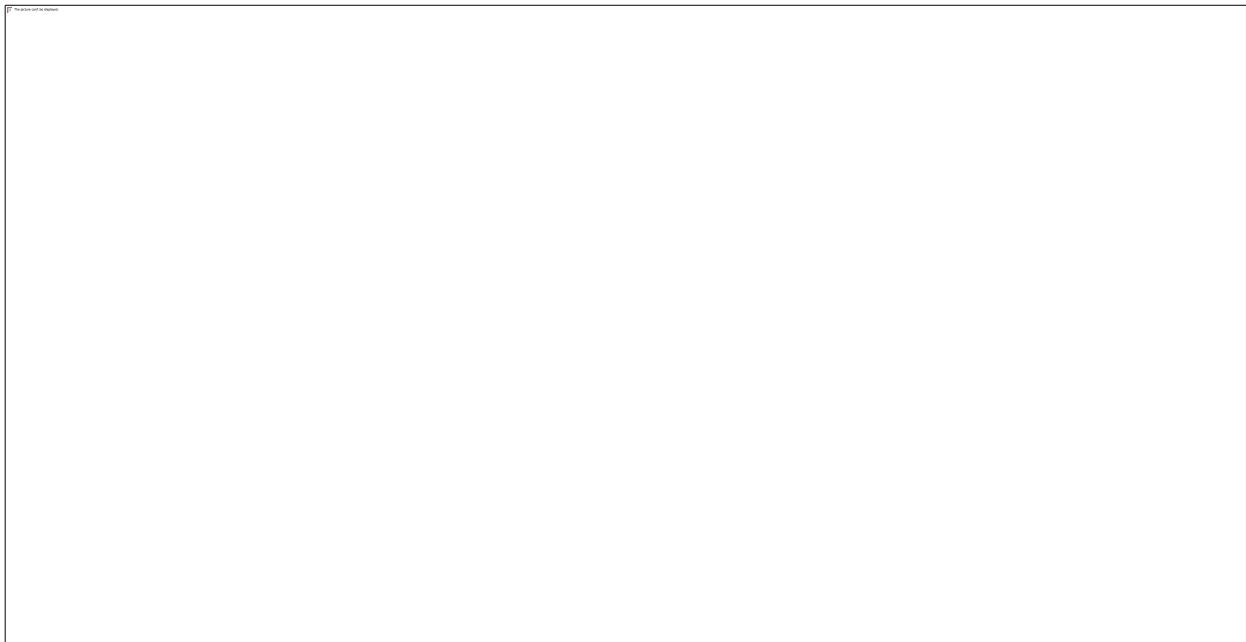
A1*: Look for $x^2 = 12 \Rightarrow x = 2\sqrt{3}$, $x^2 = 4 \times 3 \Rightarrow x = 2\sqrt{3}$ or $x = \sqrt{12} = 2\sqrt{3}$

This is a given answer and all aspects must be correct including one of the above



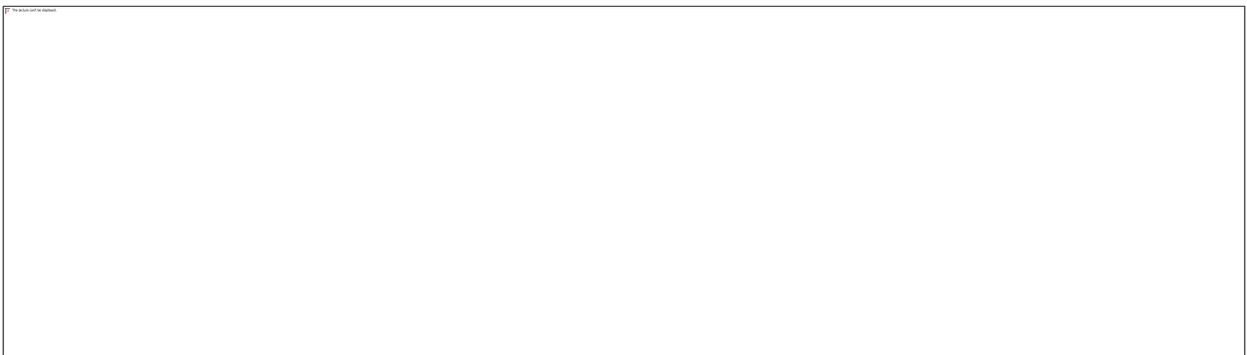
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2.



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3.

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4.

