

Question		Answer	Marks	AO	Guidance
7	(a)	$\cos(A - B) = \cos A \cos(-B) - \sin A \sin(-B)$ $\cos(-B) = \cos B, \sin(-B) = -\sin B,$ $\cos(A - B) = \cos A \cos B - \sin A(-\sin B)$ $\cos(A - B) = \cos A \cos B + \sin A \sin B$ A.G.	M1 A1 [2]	2.1 2.4	Replace B with $-B$ in given identity State $\cos(-B) = \cos B$ and $\sin(-B) = -\sin B$, and conclude with correct identity Condone $-\sin A \sin(-B)$ becoming $\sin A \sin B$ with no intermediate step $\cos(-B) = \cos B, \sin(-B) = -\sin B$ must be stated, but no justification needed

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7	(b)	$\left(\frac{\sqrt{3}}{2}\cos\theta - \frac{1}{2}\sin\theta\right)\left(\frac{\sqrt{3}}{2}\cos\theta + \frac{1}{2}\sin\theta\right)$	B1	2.1	Use correct identities, with exact trig values, to obtain a correct expression	<p>Allow BOD for ambiguous positioning of + and – signs in a product, but penalise explicit errors if a single identity is seen in isolation</p> <p>If expansion done before exact trig values used, then the expression must still be correct at the point that the B1 is awarded</p> <p>To obtain answer of form $a\cos^2\theta - b\sin^2\theta$ ($a > 0, b > 0$), with possibly $c\cos\theta\sin\theta - c\cos\theta\sin\theta$ also present</p> <p>www eg if middle terms shown for expansion, then these must be correct</p>
		$\frac{3}{4}\cos^2\theta - \frac{1}{4}\sin^2\theta$	M1	2.1	Expand brackets May be recognised as difference of two squares so no need to see $\frac{\sqrt{3}}{4}\cos\theta\sin\theta - \frac{\sqrt{3}}{4}\cos\theta\sin\theta$	
		$\frac{3}{4}\cos^2\theta - \frac{1}{4}(1 - \cos^2\theta)$	A1	2.1	Use Pythagorean identity and simplify to given answer	
		$\cos^2\theta - \frac{1}{4}$ A.G.				
			[3]			

7	(c)	(i)	max value is $\frac{3}{4}$	B1	1.1	Correct max value	<p>B0 if any extra angles given</p> <p>Must be ‘positive’ so B0 for 0°</p> <p>Must be in degrees</p> <p>Marks are independent</p>
			when θ is 180°	B1	1.1	Correct angle	
				[2]			
7	(c)	(ii)	min value is $-\frac{1}{4}$	B1	1.1	Correct min value	

Question		Answer	Marks	AO	Guidance
		when θ is 90°	B1	1.1	Correct angle
			[2]		<p>B0 if any extra angles given Must be in degrees SC If angles in both parts are correct, but in radians, then penalise only once (mark as B0 in (i) and B1 in (ii))</p> <p>Marks are independent</p>