Question	Answer	Marks	Guidance
7(a)	$\frac{BC}{\sin 60} = \frac{\sqrt{2}}{\sin 45}$ oe	**M1**	
	$BC = \sqrt{3}$ oe	**A1**	
	$\frac{1}{2} \times \sqrt{2} \times \sqrt{3} \times \sin 75 = \frac{3+\sqrt{3}}{4}$ OR $\text{height} = \left(\frac{3+\sqrt{3}}{4}\right) \times \frac{2}{\sqrt{3}}$ oe	**M1**	**FT** *their BC* providing it has not been found using the given result for sin75
	$\sin 75 = \frac{2(3+\sqrt{3})}{4\sqrt{6}}$ oe OR $\sin 75 = \frac{\left(\frac{3+\sqrt{3}}{4}\right) \times \frac{2}{\sqrt{3}}}{\sqrt{2}}$ oe $\left[= \frac{\frac{1+\sqrt{3}}{2}}{\sqrt{2}} = \frac{1+\sqrt{3}}{2\sqrt{2}}\right]$	**A1**	**dep** on all previous marks being awarded Isolates sin 75 correctly or deals with surds on LHS of correct equation e.g. $\frac{1}{2} \times 6 \times \sin 75 = \left(\frac{3+\sqrt{3}}{4}\right) \times \sqrt{6}$
	correct completion to given answer $\frac{\sqrt{6}+\sqrt{2}}{4}$	**A1**	must be convincing with an intermediate step if needed
	Alternative methods (finding *AC* first)		
	$\frac{1}{2} \times \sqrt{2} \times AC \times \sin 60 = \frac{3+\sqrt{3}}{4}$ oe	**(M1)**	
	$AC = \frac{2}{\sqrt{2}} \times \frac{2}{\sqrt{3}} \times \frac{3+\sqrt{3}}{4}$ oe	**(A1)**	Isolates *AC* correctly
	$AC = \frac{\sqrt{2}+\sqrt{6}}{2}$	**(A1)**	Must be convinced no calculator is being used
	$\frac{\sin 75}{\frac{\sqrt{2}+\sqrt{6}}{2}} = \frac{\sin 45}{\sqrt{2}}$ oe	**(M1)**	**FT** *their AC* May simplify to $\sin 75 = \frac{AC}{2}$ before inserting *their AC*
	correct completion to given answer $\frac{\sqrt{6}+\sqrt{2}}{4}$	**(A1)**	**dep** on all previous marks being awarded must be convincing with an intermediate step if needed

Question	Answer	Marks	Guidance
7(b)	$\frac{AC}{\frac{\sqrt{6}+\sqrt{2}}{4}} = \frac{\sqrt{2}}{\frac{\sqrt{2}}{2}}$ or $\frac{AC}{\frac{\sqrt{6}+\sqrt{2}}{4}} = \frac{\sqrt{3}}{\frac{\sqrt{3}}{2}}$ or better	**M1**	
	$\frac{\sqrt{6}+\sqrt{2}}{2}$ nfww	**A1**	
8(a)	$\frac{\sin x}{\frac{\sin x}{\cos x}-1} - \frac{\cos x}{\frac{\sin x}{\cos x}+1}$	**M1**	OR $\frac{\sin x(\tan x+1)-\cos x(\tan x-1)}{(\tan x-1)(\tan x+1)}$
	$\frac{\frac{\sin x}{\sin x-\cos x}}{\cos x} - \frac{\frac{\cos x}{\sin x+\cos x}}{\cos x}$ OR $\frac{\sin x\left(\frac{\sin x}{\cos x}+1\right)-\cos x\left(\frac{\sin x}{\cos x}-1\right)}{\frac{\sin^2 x}{\cos^2 x}-1}$	**A1**	OR $\frac{\sin x\tan x+\sin x-\cos x\tan x+\cos x}{(\tan x-1)(\tan x+1)}$ OR $\frac{\sin x\left(\frac{\sin x}{\cos x}+1\right)-\cos x\left(\frac{\sin x}{\cos x}-1\right)}{\left(\frac{\sin x}{\cos x}-1\right)\left(\frac{\sin x}{\cos x}+1\right)}$
	$\frac{\sin x\cos x}{\sin x-\cos x} - \frac{\cos^2 x}{\sin x+\cos x}$ OR $\frac{\sin x\left(\frac{\sin x+\cos x}{\cos x}\right)-\cos x\left(\frac{\sin x-\cos x}{\cos x}\right)}{\frac{\sin^2 x-\cos^2 x}{\cos^2 x}}$	**A1**	OR $\frac{\frac{\sin^2 x}{\cos x}+\sin x-\sin x+\cos x}{\frac{\sin^2 x}{\cos^2 x}-1}$
	$\frac{\sin^2 x\cos x+\sin x\cos^2 x-\cos^2 x\sin x+\cos^3 x}{\sin^2 x+\cos x\sin x-\cos x\sin x-\cos^2 x}$ OR $\frac{\sin^2 x+\sin x\cos x-\cos x\sin x+\cos^2 x}{\cos x}\times\frac{\cos^2 x}{\sin^2 x-\cos^2 x}$	**A1**	OR $\frac{\frac{\sin^2 x+\cos^2 x}{\cos x}}{\frac{\sin^2 x-\cos^2 x}{\cos^2 x}}$ or $\frac{\frac{\sin^2 x+\cos^2 x}{\cos x}}{\frac{1-2\cos^2 x}{\cos^2 x}}$
	Fully correct justification of given answer e.g. $\frac{\cos x\left(\sin^2 x+\cos^2 x\right)}{\sin^2 x-\cos^2 x} = \frac{\cos x}{\sin^2 x-\cos^2 x}$ oe	**A1**	All steps correct and final step justified $\frac{1}{\cos x}\times\frac{\cos^2 x}{\sin^2 x-\cos^2 x} = \frac{\cos x}{\sin^2 x-\cos^2 x}$ oe
8(b)	$2\cos^2 x+\cos x-1[=0]$	**B2**	**B1** for $\cos x = 1-\cos^2 x-\cos^2 x$ or better
	$(2\cos x-1)(\cos x+1)[=0]$	**M1**	**FT** *their* 3-term quadratic in cos*x*
	$[x=]$ 60°, 300°, 180° and no extras in range	**A2**	**A1** for any two correct , ignoring extras