7 (a)	$\sqrt{2}\sin(x+45°)=\cos(x-60°)$	
	$\sqrt{2}(\sin x\cos 45°+\cos x\sin 45°)=\cos x\cos 60°+\sin x\sin 60°$	M1 A1
	$\sin x+\cos x=\frac{1}{2}\cos x+\frac{\sqrt{3}}{2}\sin x$	
	$\cos x=(\sqrt{3}-2)\sin x$	M1
	$\tan x\left(=\frac{1}{\sqrt{3}-2}=\frac{\sqrt{3}+2}{-1}\right)=-2-\sqrt{3}$ *	A1*
		(4)
(b)	States or uses $x+45°=2\theta$ o.e.	B1
	Proceeds from e.g. $\tan(2\theta-45°)=-2-\sqrt{3}\Rightarrow 2\theta-45°=105°,285°$	M1
	Correct order of operations to find one angle	dM1
	$\theta=75°,165°$	A1
		(4)

Question Number	Scheme	Marks
8 (i)	States or uses $\text{cosec}\,\theta=\frac{1}{\sin\theta}$	B1
	Uses both $\text{cosec}\,\theta=\frac{1}{\sin\theta}$ and $\sin 2\theta=2\sin\theta\cos\theta$	M1
	$3\text{cosec}\,\theta=8\cos\theta\Rightarrow\sin 2\theta=\frac{3}{4}$	A1
	$\Rightarrow\theta=\frac{1}{2}\arcsin\left(\frac{3}{4}\right)=$ awrt 0.424, awrt 1.15	M1 A1
		(5)
(ii)	$\frac{\tan 2x-\tan 70°}{1+\tan 2x\tan 70°}=-\frac{3}{8}\Rightarrow\tan(2x-70°)=-\frac{3}{8}$	M1 A1
	Correct order of operations $x=\frac{\arctan\left(-\frac{3}{8}\right)+70°}{2}$	dM1
	awrt 24.7° , awrt 114.7°	A1
		(4)
		(9 marks)

2(a)	$R=25$	B1
	$\tan\alpha=\frac{24}{7}\Rightarrow\alpha=...$	M1
	$\alpha=1.287$	A1
		(3)
(b)(i)	$\text{Min}=\frac{5}{90-3\times"25"\times(-1)}$	M1
	$=\frac{1}{33}$	A1
(b)(ii)	$(2x+"1.287")=\pi,...\Rightarrow x=...$	M1
	$\Rightarrow x=\frac{\pi-"1.287"}{2}=0.927$	A1
		(4)
		Total 7