Question			Answer	Marks	AO		Guidance	
6	(i)		$\sin\left(2\theta+\frac{\pi}{4}\right)=3\cos\left(2\theta+\frac{\pi}{4}\right)$ $\sin 2\theta\cos\frac{\pi}{4}+\sin\frac{\pi}{4}\cos 2\theta=3\cos 2\theta\cos\frac{\pi}{4}-3\sin 2\theta\sin\frac{\pi}{4}$	**M1**	**1.1**	E	Correct use of compound angle formulae at least once	
			$4\sin 2\theta=2\cos 2\theta$	**A1**	**1.1**	E	Not from incorrect working	
			$2\dfrac{\sin 2\theta}{\cos 2\theta}=1\Rightarrow\tan 2\theta=\frac{1}{2}$	**A1** **[3]**	**2.2a**	E	**AG** – at least one step of intermediate working seen	
			ALT: $\tan\left(2\theta+\frac{\pi}{4}\right)=3$	**B1**				
			$\dfrac{\tan 2\theta+1}{1-\tan 2\theta}=3\Rightarrow\ \tan 2\theta+1=3\left(1-\tan 2\theta\right)$	**M1**			Correct use of compound angle formula for tan and removal of fraction	
			$\tan 2\theta=\frac{1}{2}$	**A1**				
6	(ii)		$\tan 2\theta=\frac{1}{2}\Rightarrow\dfrac{2\tan\theta}{1-\tan^2\theta}=\frac{1}{2}$	**M1***	**3.1a**	E	Double angle formula for $\tan 2\theta$	Allow one sign slip in formula
			$\tan^2\theta+4\tan\theta-1=0$	**Dep*M1**	**1.1**	E	Rearranges correctly to form 3-term quadratic in tan	
			$\tan\theta=-2\pm\sqrt{5}$	**A1**	**1.1**	C	**BC** - One correct exact value	
			$-2+\sqrt{5}>0$ so $\tan\theta=-2+\sqrt{5}$ gives acute angle	**A1**	**2.3**	A	Explicit rejection and reason for rejection	
			$\therefore\tan\theta=-2-\sqrt{5}$	**A1** **[5]**	**2.2a**	A	This value only	