Question			Answer	Marks	AO	Guidance	
8	(a)		$\frac{2\tan\theta}{1+\tan^2\theta} = \frac{2\sin\theta}{\cos\theta} \div \sec^2\theta$	**B1**	**2.1**	Use $1+\tan^2\theta = \sec^2\theta$ and $\tan\theta = \frac{\sin\theta}{\cos\theta}$	
			$= \frac{2\sin\theta\cos^2\theta}{\cos\theta}$	**M1**	**2.1**	Express LHS in terms of $\sin\theta$ and $\cos\theta$	**M0** for attempts to rearrange to solve an equation
			$= 2\sin\theta\cos\theta = \sin 2\theta$	**A1**	**2.2a**		
				[3]			
8	(b)		**DR** $\sin 2\theta = 3\cos 2\theta$ so $\tan 2\theta = 3$	**B1**	**2.2a**	Use the result of **(a)** or otherwise achieve an equation in tan only	**OR B1** for squaring both sides and achieving an equation in either sin or cos only
			$\theta = \frac{1}{2}\tan^{-1}3$ oe	**M1**	**2.1**	Use correct order of operations to solve, must be shown	
			0.625, 2.20	**A1**	**1.1**	Both values required. May be given to 3 s.f. or better (0.624523, 2.195319), or both solutions in exact form $\frac{1}{2}\tan^{-1}3$, $\frac{1}{2}\tan^{-1}3+\frac{1}{2}\pi$	For answers alone award no marks
				[3]			