Question	Answer	Marks	Guidance
(a)	$\dfrac{\sin^3\theta}{\sin\theta-1}-\dfrac{\sin^2\theta}{1+\sin\theta}=\dfrac{\sin^3\theta(1+\sin\theta)}{(\sin\theta-1)(1+\sin\theta)}-\dfrac{\sin^2\theta(\sin\theta-1)}{(\sin\theta-1)(1+\sin\theta)}$ $\left[=\dfrac{\sin^3\theta(1+\sin\theta)-\sin^2\theta(\sin\theta-1)}{(\sin\theta-1)(1+\sin\theta)}\right]$	*M1	Using a common denominator.
	$-\dfrac{\sin^2\theta+\sin^4\theta}{1-\sin^2\theta}$	DM1	Reaching $\pm(1-\sin^2\theta)$ in denominator. SOI by $\pm\cos^2\theta$.
	$-\dfrac{\sin^2\theta(1+\sin^2\theta)}{\cos^2\theta}$	DM1	Using $\sin^2\theta+\cos^2\theta=1$ in denominator and isolating $\sin^2\theta$ in numerator.
	$-\tan^2\theta(1+\sin^2\theta)$	A1	AG - Using/stating $\tan\theta=\dfrac{\sin\theta}{\cos\theta}$ is sufficient for A1. May be working from both sides provided the argument is complete. A0 if θ or brackets missing throughout, or sign errors. Allow recovery if AG follows from *their* working.
	Alternative method for Q4(a)		
	$-\tan^2\theta(1+\sin^2\theta)=-\dfrac{\sin^2\theta(1+\sin^2\theta)}{1-\sin^2\theta}$	*M1	Using $\tan\theta=\dfrac{\sin\theta}{\cos\theta}$ and $\sin^2\theta+\cos^2\theta=1$.
	$\dfrac{-\sin^2\theta-\sin^4\theta}{(1-\sin\theta)(1+\sin\theta)}$	DM1	Factorising denominator.
	$\dfrac{\sin^2\theta+\sin^3\theta-\sin^3\theta+\sin^4\theta}{(\sin\theta-1)(1+\sin\theta)}=\dfrac{\sin^3\theta(1+\sin\theta)-\sin^2\theta(\sin\theta-1)}{(\sin\theta-1)(1+\sin\theta)}$	DM1	Factorising numerator.

Question	Answer	Marks	Guidance
(a)	$\dfrac{\sin^3\theta}{\sin\theta-1}-\dfrac{\sin^2\theta}{1+\sin\theta}$	**A1**	AG A0 if θ or brackets missing throughout, or sign errors. Allow recovery if AG follows from *their* working.
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(b)	$-\tan^2\theta\left(1+\sin^2\theta\right)=\tan^2\theta\left(1-\sin^2\theta\right)$ leading to $[2]\tan^2\theta=0$	**M1**	Obtaining a (trig function)^2 = 0 WWW.
	$\tan\theta=0$ leading to $[\theta=]\pi$	**A1**	Ignore extra solutions outside the interval ( ).
	Alternative method for Q4(b)		
	$-\dfrac{\sin^2\theta}{\cos^2\theta}(1+\sin^2\theta)=\dfrac{\sin^2\theta}{\cos^2\theta}(1-\sin^2\theta)$ leading to $-\sin^2\theta-\sin^4\theta=\sin^2\theta-\sin^4\theta$ leading to $[2]\sin^2\theta=0$	**M1**	Obtaining a (trig function)^2 = 0 WWW.
	$\sin\theta=0$ leading to $[\theta=]\pi$	**A1**	Ignore extra solutions outside the interval $(0, 2\pi)$.
		2	