Question			Answer	Marks	AO	Guidance	
6	(a)		**DR** $f\left(\frac{1}{2}\right)=4\left(\frac{1}{2}\right)^3+4\left(\frac{1}{2}\right)^2+7\left(\frac{1}{2}\right)-5$ $=\frac{1}{2}+1+\frac{7}{2}-5=0$ Since $f\left(\frac{1}{2}\right)=0$ therefore $(2x-1)$ is a factor	***M1** **dep*E1** **[2]**	**2.1** **2.1**	Must show an intermediate line of reasoning without brackets or indices	**OR** ***M1** Attempt to divide $f(x)$ by $(2x-1)$ **dep*E1** State 'No remainder, hence $2x-1$ is a factor'
6	(b)		**DR** Substituting $x=\sin\theta$ into the equation in part (i) gives the equation in part (ii) so since $x=\frac{1}{2}$ is a solution in part (i), $\sin\theta=\frac{1}{2}$ is a solution in part (ii) Hence $\theta=30$ or 150 Attempt method for finding quadratic factor in terms of x or $\sin\theta$ $2x^2+3x+5$ $2x^2+3x+5=0$ has no solutions because $D=9-4\times2\times5<0$ So there are no more solutions of the given equation	**M1** **E1** **A1** **M1** **A1** **M1** **E1** **[7]**	**3.1a** **3.2a** **1.1** **1.1a** **1.1** **2.1** **2.4**	Connect the equations given in part (i) and (ii) Interpret to give a solution for the equation for both correct with no extras Attempt to obtain quadratic factor by any correct method Attempt to solve the quadratic factor Explicitly use $b^2-4ac<0$ oe	Must be shown Or consider the existence of further solutions , e.g. by calculus