Question	Answer	Marks	Guidance
5(c)	$\text{cosec}2\theta = -3$ soi	**B1**	
	$\sin 2\theta = -\frac{1}{3}$ $2\theta = -19.47^o, 199.47^o, 340.53^o, 559.47^o, 700.53^o$ $\theta = 99.7^o, 170.3^o, 279.7^o, 350.3^o$	**4**	**M1** a correct double angle **M1** for correct order of operations to obtain one correct solution. May be implied by e.g. a correct solution or $\theta = -9.7^o$ or a correct angle in radians **A1** for 2 correct solutions **A1** for a further 2 correct solutions and no extra solutions within the range
6(a)(i)	$300 + \frac{1}{2}(10+V)40 + \frac{1}{2}50V = 2750$ or $700 + \frac{1}{2}(40\times(V-10)) + \frac{1}{2}50V = 2750$ oe	**M1**	Allow one slip, but must be considering complete area
	$V = 50$	**A1**	
6(a)(ii)	–1 nfww	**2**	**M1 FT** *their V* for a correct gradient calculation
6(b)(i)	$\left(\frac{dv}{dt} =\right)\ t\left(\frac{1}{2}\times 2t\times\left(t^2+5\right)^{-\frac{1}{2}}\right)+\left(t^2+5\right)^{\frac{1}{2}}$ soi	**3**	**B1** for $\frac{1}{2}\times 2t\times\left(t^2+5\right)^{-\frac{1}{2}}$ **M1** for a correct attempt at a product **A1** for all correct apart from $\frac{1}{2}\times 2t\times\left(t^2+5\right)^{-\frac{1}{2}}$
	$\frac{13}{3}$	**A1**	
6(b)(ii)	There is no change of sign for *v* as *v* is always positive, so no change in direction. oe	**B1**	
7(a)	$a(5x-2)^{\frac{1}{3}}$	**M1**	
	$\frac{3}{5}(5x-2)^{\frac{1}{3}}$ oe	**A1**	
	$\frac{3}{5}\left(18^{\frac{1}{3}}-2\right)$ or exact equivalent	**2**	**Dependent M1** for correct use of limits

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