Question	Answer	Marks	Guidance
6(b)	$\frac{2\sec x}{(\sec x-1)(\sec x+1)}$ soi	**B1**	For adding the two fractions
	$\frac{2\sec x}{(\sec^2 x-1)}$	**B1**	**Dep** on previous **B1** for expanding and simplifying the denominator
	$\frac{2\sec x}{\tan^2 x}$ or $\frac{2}{\tan^2 x\cos x}$	**B1**	**Dep** on previous **B1** for use of $\sec^2 x = 1+\tan^2 x$
	$\frac{2\sec x}{\tan x}\times\cot x$ or $\frac{2\cos x}{\sin^2 x}$ oe or $\frac{2}{\tan x\sin x}$ leading to 2cosec x cot x **AG**	**B1**	**Dep** on previous **B1** with at least one more correct step to get to the given answer
	Alternative method		
	$\frac{1}{\frac{1}{\cos x}-1}+\frac{1}{\frac{1}{\cos x}+1}$ leading to $\frac{\cos x}{1-\cos x}+\frac{\cos x}{1+\cos x}$	**(B1)**	
	$=\frac{\cos x+\cos^2 x+\cos x-\cos^2 x}{1-\cos^2 x}$	**(B1)**	**Dep** on previous **B1** for adding the two fractions
	$=\frac{2\cos x}{\sin^2 x}$	**(B1)**	**Dep** on previous **B1** For use of $\sin^2 x = 1-\cos^2 x$
	= 2cosec $x\times\frac{\cos x}{\sin x}$ oe leading to = 2cosec x cot x **AG**	**(B1)**	**Dep** on previous **B1** with at least one more correct step to get to the given answer
7(a)	$\left[\overrightarrow{OR}=\right]$ $k(-\mathbf{i}+5\mathbf{j})$ or $k\begin{pmatrix}-1\\5\end{pmatrix}$	**B1**	soi
	$\sqrt{1^2+5^2}=\sqrt{26}$	**B1**	For finding the magnitude of $\overrightarrow{PQ}$ allow unsimplified
	$-3\mathbf{i}+15\mathbf{j}$ or $\begin{pmatrix}-3\\15\end{pmatrix}$	**B1**	Allow $3(-\mathbf{i}+5\mathbf{j})$ or $3\begin{pmatrix}-1\\5\end{pmatrix}$ Do notisw

Question	Answer	Marks	Guidance
7(b)	$a(2\mathbf{i} - 3\mathbf{j}) + b(-\mathbf{i} + 5\mathbf{j}) = 10\mathbf{i} + 6\mathbf{j}$ oe	**B1**	
	$2a - b = 10$ oe, $-3a + 5b = 6$ oe or for $\frac{10-2a}{6+3a} = \frac{-1}{5}$ or $\frac{10+b}{6-5b} = \frac{-2}{3}$	**M1**	**Dep** on previous **B1** for equating like vectors
	$a = 8$ or $b = 6$	**A1**	
	$16\mathbf{i} - 24\underline{\mathbf{j}}$ oe	**A1**	Allow $8(2\mathbf{i} - 3\underline{\mathbf{j}})$ or $8\begin{pmatrix} 2 \\ -3 \end{pmatrix}$
8	$-x^4 + 3x^2 + 4$ (= 0)	**M1**	For attempt to solve simultaneously Allow one term error
	$(x^2 - 4)(x^2 + 1) = 0$ oe	**M1**	**Dep** for an attempt to solve *their* 3-term quadratic equation in terms of x^2
	$x = 2$ and -2 only	**A1**	
	$\int(-x^4 + 3x^2 + 4)\mathrm{d}x$	**M1**	For an attempt to integrate *their* quadratic–quartic or the other way around with one term correctly integrated Allow without limits
	$\left[-\frac{x^5}{5} + x^3 + 4x\right]_{-2}^{2}$	**A1**	All correct with correct limits of 2 and -2 or with limits of 0 and 2 or -2 and 0 then double the area of the integral
	$-\frac{32}{5} + 8 + 8 - (\frac{32}{5} - 8 - 8)$	**M1**	**Dep** for correct use of *their* limits into *their* integral substituted correctly If *their* integration – must see substitution of limits to award the mark
	$= \frac{96}{5}$ or 19.2	**A1**	