Question	Answer	Marks	Guidance
1(a)	1080^{o}	**B1**	
1(b)	$a=4$	**B1**	
	$b=3$	**B1**	
	$c=-2$	**B1**	
2(a)	$(0,\ 14)$	**2**	**B1** for x-coordinate **B1** for y-coordinate
2(b)	$y-14=-\frac{1}{2}x$	**2**	**M1** for finding the gradient of a perpendicular line and attempt at the straight line equation using *their B* **A1** Allow unsimplified
2(c)	Area = $\frac{1}{2}\times 14\times 28$	**M1**	Must be a complete method making use of *their* answer to **(b)**
	196	**A1**	
3(a)	13 soi	**B1**	For finding the magnitude of $\begin{pmatrix}12\\-5\end{pmatrix}$
	$\begin{pmatrix}36\\-15\end{pmatrix}$	**B1**	
3(b)	$10+4\lambda=-4\mu$ or $-5+6\lambda=5\mu$	**2**	**M1** for equating like vectors **Dep M1** for attempt to solve *their* simultaneous equations to obtain 2 solutions
	$\mu=-\frac{20}{11}$	**A1**	
	$\lambda=-\frac{15}{22}$	**A1**	
4(a)	$a=\frac{7}{2}$	**B1**	
	$b=1$	**B1**	
	$c=\frac{1}{6}$	**B1**	

Question	Answer	Marks	Guidance
4(b)	$\left(3x^{\frac{2}{5}}-5\right)\left(x^{\frac{2}{5}}-1\right)=0$	**2**	**M1** for recognition of a quadratic in $x^{\frac{2}{5}}$ **Dep M1** for solution and a correct attempt to get at least one solution for x
	[±]3.59	**A1**	
	[±]1	**A1**	
5(a)	$0=8a+4b+12+4$	**B1**	For $\mathrm{p}(2)$
	$\mathrm{p}'(x)=3ax^2+2bx+6$	**M1**	For an attempt to obtain $\mathrm{p}'(x)$
	$3a-2b+6=-7$	**M1**	**Dep** for $\mathrm{p}'(-1)$
	$0=2a+b+4$ $-13=3a-2b$	**M1**	**Dep** on both previous **M** marks for solution of equations to obtain both a and b
	$a=-3 \quad b=2$	**A1**	
5(b)	$\mathrm{p}''(x)=-18x+4$	**M1**	For differentiation of *their* $\mathrm{p}'(x)$ to obtain $\mathrm{p}''(x)$
	4	**A1**	**FT** on twice *their b*.
6	$\frac{\mathrm{d}y}{\mathrm{d}x}=m\mathrm{e}^{3x}+2x^2(+c)$	**M1**	
	$\frac{\mathrm{d}y}{\mathrm{d}x}=2\mathrm{e}^{3x}+2x^2(+c)$	**A1**	
	$5=2+c$ $c=3$	**M1**	**Dep** on previous **M** mark
	$\mathrm{f}(x)=p\mathrm{e}^{3x}+qx^3...$	**M1**	
	$y=\frac{2}{3}\mathrm{e}^{3x}+\frac{2}{3}x^3...$	**A1**	
	$\frac{5}{3}=\frac{2}{3}+d$ $d=1$	**M1**	**Dep** on previous **M** mark
	$(\mathrm{f}(x)=) \quad \frac{2}{3}\mathrm{e}^{3x}+\frac{2}{3}x^3+3x+1$	**A1**	
7(a)	6	**B1**	