Question	Answer	Marks	Guidance
1	$a=4$	**B1**	
	$b=3$	**B1**	
	$c=-5$	**B1**	
2(a)	$c=0$	**B1**	
	$\mathrm{P}\left(-\frac{1}{2}\right)$: $a+4b=-34$ oe	**B1**	Allow multiples but must be in terms of *a*, *b* and one numeric term.
	$\mathrm{P}'(x)=3ax^2-22x+b$ $\mathrm{P}'(2)=12a-44+b$ soi	**M1**	For attempt to differentiate and substitute in $x=2$
	$12a+b=62$	**A1**	Allow multiples but must be in terms of *a*, *b* and one numeric term.
	$a=6,\ b=-10$	**2**	**M1 dep** for attempt to solve *their* simultaneous equations. **A1** for both
2(b)	$x\left(6x^2-11x-10\right)$	**M1**	For $x\left(\left(\textit{their } a\right)x^2-11x+\textit{their } b\right)$
	$x(3x+2)(2x-5)$	**A1**	
3(a)	$\pm\begin{pmatrix}-5\\12\end{pmatrix}$	**B1**	
	$\begin{pmatrix}-5\\12\end{pmatrix}$	**B1**	
3(b)	13	**B1**	**FT** on *their* (a)
3(c)	$3\left(\textit{their } \overrightarrow{AB}\right)=2\overrightarrow{OX}-2\begin{pmatrix}2\\-6\end{pmatrix}$	**M1**	Condone $3\left(\textit{their } \overrightarrow{AB}\right)=2\begin{pmatrix}2\\-6\end{pmatrix}-2\overrightarrow{OX}$
	$\begin{pmatrix}-\frac{11}{2}\\12\end{pmatrix}$	**A1**	