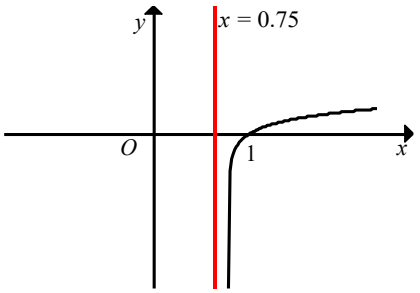
Question	Answer	Marks	Partial Marks
4	$y = \tan x$	**B1**	
	$\frac{\mathrm{d}y}{\mathrm{d}x} = \sec^2 x$	**B1**	**Alternative method for first 2 marks:** **B1** for $\frac{\mathrm{d}u}{\mathrm{d}x} = \cos x$ and $\frac{\mathrm{d}v}{\mathrm{d}x} = -\sin x$ **B1** for $\frac{\cos^2 x - (-\sin^2 x)}{\cos^2 x}$; allow unsimplified
	$\frac{\delta y}{h} = their \left.\frac{\mathrm{d}y}{\mathrm{d}x}\right\|_{x=-\frac{\pi}{4}}$	**M1**	
	$2h$	**A1**	
5(a)	$(2x - 3)(x - 7)$	**M1**	
	CV 1.5, 7	**A1**	
	$1.5 \leqslant x \leqslant 7$ nfww	**A1**	**FT** *their* CVs
5(b)	$\int_{their\,1.5}^{their\,7} (2x^2 - 17x + 21)\,\mathrm{d}x$ $= \left[\frac{2x^3}{3} - \frac{17x^2}{2} + 21x\right]_{their\,1.5}^{their\,7}$	**B1**	
	F(*their* 7) – F(*their* 1.5)	**M1**	**FT** *their* 7 and *their* 1.5 from (a); must have at least two terms correct
	$[-\frac{1331}{24}$, therefore area =] $\frac{1331}{24}$ isw or 55.5 or 55.4583333... rot to 4 or more sig figs; nfww	**A1**	
6(a)	p(–0.25) = $36(-0.25)^3 - 15(-0.25)^2 - 2(-0.25) + 1$ = 0 oe	**B1**	

Question	Answer	Marks	Partial Marks
6(b)	$(4x + 1)(9x^2 – 6x + 1)$ oe	**B2**	**B1** for any two correct terms in the quadratic factor
	$(4x + 1)(3x – 1)(3x – 1)$ nfww	**B1**	dep on **B2**
	States e.g. Repeated factor, so repeated root or finds the remaining roots as $x=\frac{1}{3}, x=\frac{1}{3}$ or finds $x=\frac{1}{3}$ and indicates e.g. twice	**B1**	dependent on all previous marks
	Alternative method $p'(x)=108x^2-30x-2$	**(B1)**	
	solving *their* $p'(x)=0$ or factorising *their* $p'(x)$	**(B1)**	
	$x=\frac{1}{3}, x=-\frac{1}{18}$	**(B1)**	
	$p\left(\frac{1}{3}\right)=36\left(\frac{1}{3}\right)^3-15\left(\frac{1}{3}\right)^2-2\left(\frac{1}{3}\right)+1=0$ [x-axis tangential to turning point, therefore root is repeated oe]	**(B1)**	
7(a)	Correct sketch  	**B2**	**B1** for correct shape passing through (1, 0) **B1** for attempt at correct shape with asymptote at $x = 0.75$ soi
7(b)	$\frac{dy}{dx}=\frac{4}{4x-3}$	**B2**	**B1** for $\frac{dy}{dx}=\frac{k}{4x-3}$ where $k \neq 4$ or 0
	$\left.\frac{dy}{dx}\right\|_{x=2}=\frac{4}{4(2)-3}$ or $\frac{4}{5}$	**M1**	**FT** *their k*; dep on at least **B1** awarded for differentiation
	When $x = 2$, $y = \ln 5$	**B1**	
	$y – \ln 5 = \frac{4}{5}(x-2)$ oe, isw	**A1**	**FT** *their* ln5 and *their* 0.8