Question	Answer	Marks	Partial Marks
7	$2x^3 - 9x^2 + 10x - 3[= 0]$	**B1**	
	Finds a correct linear factor $x - 1$ or $x - 3$ or $2x - 1$	**M1**	
	Finds the correct corresponding quadratic factor For $(x - 1)$ gives $2x^2 - 7x + 3$ or For $(x - 3)$ gives $2x^2 - 3x + 1$ or For $(2x - 1)$ gives $x^2 - 4x + 3$	**2**	**M1** for a corresponding quadratic factor with 2 terms correct
	Factorises *their* 3-term quadratic factor or solves *their* 3-term quadratic equation	**M1**	
	$x = \frac{1}{2}$, 1, 3	**A1**	
	Alternative		
	$2x^3 - 9x^2 + 10x - 3 = 0$	**(B1)**	
	Finds a correct linear factor $x - 1$ or $x - 3$ or $2x - 1$	**(M1)**	
	Finds a second correct linear factor $x - 1$ or $x - 3$ or $2x - 1$	**(M1)**	
	Finds a third correct linear factor $x - 1$ or $x - 3$ or $2x - 1$	**(M1)**	
	$x - 1$, $x - 3$ and $2x - 1$	**(A1)**	
	$x = \frac{1}{2}$, 1, 3	**(A1)**	
8(a)	$x > \frac{4}{12}$ oe	**B1**	allow $0.\dot{3}$ for $\frac{4}{12}$

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Question	Answer	Marks	Partial Marks
8(b)	$\log_x 125 = \dfrac{\log_5 125}{\log_5 x} = \dfrac{3}{\log_5 x}$ $\dfrac{1}{\log_x 125} = \log_{125} x$ or $\log_5(12x-4) = \dfrac{\log_x(12x-4)}{\log_x 5}$	**B1**	for a correct and relevant change of base seen
	$\log_5(12x-4) = 2\log_5 x + 1$ or $\log_x(12x-4) = 2 + \log_x 5$	**B1**	**Dep** on correct change of base
	$\log_5 \dfrac{12x-4}{x^2} = 1$ oe or $\log_x \dfrac{12x-4}{5} = 2$ oe or $\log_5(12x-4) = \log_5(5x^2)$	**B1**	**Dep** on correct change of base
	$5x^2 - 12x + 4 = 0$	**B1**	**Dep** on correct change of base
	$(5x-2)(x-2) = 0$ oe	**M1**	**dep** on at least one previous **B1** awarded
	$x = 0.4, 2$	**A1**	

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Question	Answer	Marks	Partial Marks
9	[When $x = 2$] $y = 3$	**B1**	
	$\frac{dy}{dx} = \frac{1}{2}(4x+1)^{-\frac{1}{2}} \times 4$	**M1**	for $\left[\frac{dy}{dx} =\right] \frac{1}{2}(4x+1)^{-\frac{1}{2}} \times k$, $k \neq 0$
	[gradient of tangent =] $\frac{1}{2}(4(2)+1)^{-\frac{1}{2}} \times 4$ soi	**M1**	**FT** *their* $\frac{dy}{dx}$ must be in the form $k(4x+1)^{-\frac{1}{2}}$, $k \neq 0$
	$y - \textit{their}\ 3 = \textit{their}\frac{2}{3}(x-2)$	**M1**	**Dep** on first **M1**
	[x-intercept for tangent =] $-\frac{5}{2}$ soi	**A1**	Must be from correct straight line equation
	$\frac{1}{2} \times \left(\frac{5}{2}+2\right) \times 3$ soi	**B1**	For area of triangle – allow unsimplified
	[x-intercept for curve =] $-\frac{1}{4}$ soi	**B1**	
	Area below curve: $\left[\frac{(4x+1)^{\frac{3}{2}}}{\frac{3}{2} \times 4}\right]_{-0.25}^{2}$ oe	**M1**	**M1** for integration in the form of $k(4x+1)^{\frac{3}{2}}$, $k \neq 0$ or 4
	correct use of upper and lower limits: $\left(\frac{(4(2)+1)^{\frac{3}{2}}}{6} - \frac{(4(-0.25)+1)^{\frac{3}{2}}}{6}\right)$ oe	**M1**	**Dep** on previous M1 for area under the curve Allow if using wrong limits but must see correct substitution
	Shaded area = $\frac{27}{4} - \frac{9}{2} = \frac{9}{4}$ oe	**A1**	

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