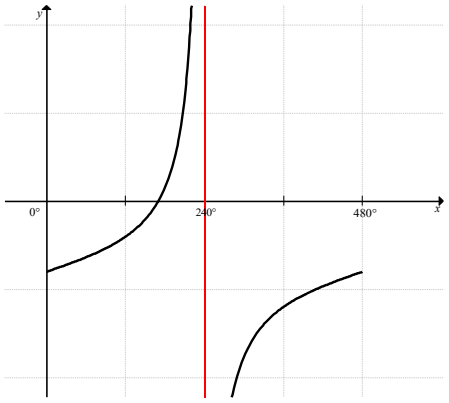
Question	Answer	Marks	Partial Marks
1(a)	$(x-3)^2-8$	**B2**	**B1** for $(x-3)^2+k$ where $k \neq -8$ or $a=-3$ or $(x+m)^2-8$ where $m \neq -3$ or $b=-8$
1(b)	$(3, -8)$	**B1**	**strict FT** *their a* and *b*
2	$m=\frac{9-5}{8-6}$ oe	**M1**	
	$9 =$ *their* $2(8) + c$ oe or $5 =$ *their* $2(6) + c$	**M1**	
	$\ln y = 2\ln x - 7$	**A1**	
	Correct completion to answer: $y = e^{\ln x^2 - 7} = e^{-7}x^2$ nfww	**A1**	
	Alternative $\ln y = p + q\ln x$ soi	**(B1)**	
	$m=\frac{9-5}{8-6}$ oe	**(M1)**	
	$9 =$ *their* $2(8) + c$ oe or $5 =$ *their* $2(6) + c$	**(M1)**	
	$y = e^{-7}x^2$	**(A1)**	
3(a)	$4x - 1$ *9 oe and $4x - 1$*–9 oe OR $16x^2 - 8x - 80$*0 oe soi	**M1**	where * could be = or any inequality sign
	$x > \frac{5}{2}$, $x < -2$ only; **mark final answer**	**A2**	not from wrong working **A1** for CV $\frac{5}{2}$, -2 oe If M0 then **SC1** for any correct inequality with at most one extra inequality

Question	Answer	Marks	Partial Marks
3(b)	$\left(2\sqrt{x}-3\right)\left(\sqrt{x}-4\right)$ or $x = u^2$ and $(2u – 3)(u – 4)$ oe soi	**M1**	
	$\sqrt{x}=\frac{3}{2},\ \sqrt{x}=4$ oe	**A1**	
	$x=\frac{9}{4}$, $x = 16$	**B1**	**FT** their $\sqrt{x}$
	Alternative $(2x+12)^2=\left(11x^{\frac{1}{2}}\right)^2$ simplified to $4x^2-73x+144=0$	**(M1)**	
	solves 3 term quadratic in x	**(M1)**	
	$x=\frac{9}{4}$, $x = 16$	**(A1)**	
4(a)	$a = –4$	**B1**	
	$480=\frac{180}{b}$ oe	**M1**	
	$b=\frac{3}{8}$	**A1**	
4(b)	Correct sketch  	**B2**	correct tan shape, two branches starting and finishing on same negative y value asymptote implied at $x = 240$ root between 120 and 240 **B1** for correct tan shape with exactly two branches plus one other correct property Maximum **B1** if not fully correct