Question	Answer	Marks	Guidance
8(a)	$3(x-2)^2 + 2$ or $a = -2$, $b = 2$	**B1 B1**	
		2	
8(b)	2 or $k = 2$ or $k \geq 2$	**B1FT**	FT on *their a*. Do not accept $x = 2$ or $x \geqslant 2$.
		1	
8(c)	$3(x-2)^2 + 14 - 12 = y \Rightarrow (x-2)^2 = \dfrac{y-2}{3}$	**M1**	Using *their* completed square form.
	$x = [\pm]\sqrt{\dfrac{y-2}{3}} + 2$	**DM1**	
	$\mathrm{f}^{-1}(x) = \sqrt{\dfrac{x-2}{3}} + 2$	**A1**	OE, e.g. $y = \dfrac{\sqrt{3x-6}}{3} + 2$.
		3	

Question	Answer	Marks	Guidance
8(d)	Finding $f^{-1}(29)$ [$= 5$]	M1	Or solving $f(x) = 29$ [using *their* completed square form, OE].
	Finding $f^{-1}(\textit{their } 5)$	M1	Or solving $f(x) = \textit{their } 5$.
	$x = 3$	A1	If using $f(x)$ method, $x = 1$ must be discarded.
	Alternative solution for Question 8(d)		
	$3\left(3(x-2)^2 + 2\right) - 2\right)^2 + 2 = 29$ using *their* completed square form	M1	Or $3\left(3x^2 - 12x + 14\right)^2 - 12\left(3x^2 - 12x + 14\right) + 14 = 29$. Allow if the '$= 29$' appears later in the working.
	Solving as far as $9(x-2)^4 = 9$ or $x^2 - 4x + 3 = 0$	DM1	OE Or $[27]\left(x^4 - 8x^3 + 24x^2 - 32x + 15\right) = 0$.
	$x = 3$ only	A1	WWW Only dependent on the first M1.
		3	