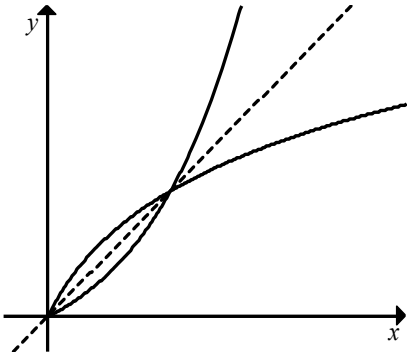
Question	Answer	Marks	Partial Marks
11(a)		**B3**	**B1** for correct shape of f or f^{-1} **B1** for symmetry **B1** for drawn over correct domain **Maximum of 2 marks if not fully correct**
11(b)(i)	$[\pm]\sqrt{x-1}=y-4$ soi	**M1**	
	$g^{-1}(x)=4-\sqrt{x-1}$	**A1**	
	[Range] $g^{-1} \leqslant 4$	**B1**	
	[Domain] $x \geqslant 1$	**B1**	
11(b)(ii)	$\ln(2[(x-4)^2+1]+1)$	**M1**	
	$\ln(2x^2-16x+35)$	**A1**	
11(b)(iii)	Valid explanation, e.g. some of the values in the range of f are outside the domain of g	**B1**	
12(a)	$\frac{\mathrm{d}\left(\mathrm{e}^{3x}\right)}{\mathrm{d}x}=3\mathrm{e}^{3x}$	**B1**	
	$\frac{\mathrm{d}(2x+3)^6}{\mathrm{d}x}=k(2x+3)^5$	**M1**	
	their $(3\mathrm{e}^{3x})\,(2x+3)^6+$ (e^{3x}) (*their* $12\,(2x+3)^5$)	**M1**	
	$(3\mathrm{e}^{3x})\,(2x+3)^6+(\mathrm{e}^{3x})\,(12\,(2x+3)^5)$	**A1**	
	$(3\mathrm{e}^{3x})\,(2x+3)^5(2x+7)=0$	**M1**	
	$x=-1.5, -3.5$	**A1**	
12(b)	$x=0.5 \quad f''(0.5)[=-5]<0 \Rightarrow$ max $x=3 \quad f''(3)[=5]>0 \Rightarrow$ min	**B2**	**B1** for either one correct