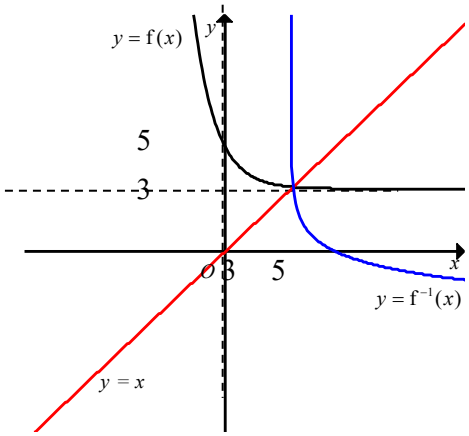
Question	Answer	Marks	Partial Marks
6(b)	51 963 120	**2**	**M1** for ${}^{12}C_4\left(\frac{6}{x^2}\right)^8\left(\frac{x^4}{2}\right)^4$ soi
7(a)	Correct pair of graphs with **both** asymptotes and **both** intercepts correctly shown  	**4**	**B1** for correct shape for f; must have positive y-intercept and appear to tend to an asymptote in the 1st quadrant **B1** for (0, 5) indicated; must have attempted correct shape for f **B1** for asymptote at $y = 3$; must have attempted correct shape for f **B1** for a correct reflection of *their* f in the line $y = x$ $y = x$ does not have to be drawn **Maximum of B3 if not fully correct**
7(b)	$e^y = \frac{3}{2-x} - 2$ oe OR $e^x = \frac{3}{2-y} - 2$ oe and variables swapped at some point	**M1**	Rearranges to $e^y = \ldots$ e.g. $e^y = \frac{2x-1}{2-x}$ or $e^y = \frac{1-2x}{x-2}$ or $e^y = \frac{-3}{x-2} - 2$
	$\ln\left(\frac{3}{2-x} - 2\right)$ oe, isw	**A1**	
	$1 \leqslant x < 2$	**B2**	**B1** $x \geqslant 1$ oe OR $x < 2$ oe OR $1 < x \leqslant 2$
8(a)	$\cos x = 0$ or $\tan x = \frac{3}{2}$ oe	**M1**	
	$[x =] \frac{\pi}{2}$ or 1.57[07...] 0.983 or 0.9827[93…]	**A2**	and no extra solutions in range **A1** for either ignoring extras
8(b)	$\frac{2}{\sin(2\theta+1)} - 12\sin(2\theta+1) = 5$ or $2\operatorname{cosec}(2\theta+1) - \frac{12}{\operatorname{cosec}(2\theta+1)} = 5$	**M1**	• Writes in terms of $\operatorname{cosec}(2\theta+1)$ or $\sin(2\theta+1)$ only.