Question	Answer	Marks	Partial marks
1	−0.8, 0.55, 2.25	**B1**	
	$x < -0.8$ $0.55 < x < 2.25$	**B2**	**B1** for either inequality correct
2(a)	$5 - (x + 2)^2$	**B2**	**B1** for $-(x + 2)^2$ or $(x + 2)^2$ or $a = 5$ and $b = 2$
2(b)	$f \leqslant 5$ or $f(x) \leqslant 5$	**B1**	**FT** *their* 5
2(c)	−2	**B1**	**FT** − *their* 2
2(d)	Complete method to find inverse function: Swaps the variables and rearranges or rearranges and swaps the variables at some point in their solution	**M1**	For **M1 FT** *their* part (a) provided it is in the form $a-(x+b)^2$
	$[g^{-1}(x) =] - 2 + \sqrt{5-x}$ or $\left[g^{-1}(x) = \right]\dfrac{-4+\sqrt{4^2-4[1](x-1)}}{2}$ or $\left[g^{-1}(x) = \right]\dfrac{-(-4)-\sqrt{(-4)^2-4(-1)(1-x)}}{-2}$ oe, isw	**A2**	**A1** for $[g^{-1}(x) =] - 2 \pm \sqrt{5-x}$ or $[g^{-1}(x) =] = \dfrac{-4 \pm \sqrt{4^2-4[1](x-1)}}{2(1)}$ or $[g^{-1}(x) =] = \dfrac{-(-4) \pm \sqrt{4^2-4(-1)(1-x)}}{2(-1)}$
	[Domain:] $x \leqslant 5$	**B1**	**FT** *their* part (b) provided it is in form $f(x) \leqslant a$ where a is a constant
	[Range:] $g^{-1} \geqslant$ *their* −2	**B1**	**FT** *their* value of k in part (c)
3(a)	$4\tan^2\theta - \sec^2\theta$	**M1**	e.g. $4\dfrac{\sin^2\theta}{\cos^2\theta} - \dfrac{1}{\cos^2\theta}$
	Justified completion to given answer e.g. $4\tan^2\theta - (1 + \tan^2\theta)$ $= 3\tan^2\theta - 1$ or $3\tan^2\theta - (\sec^2\theta - \tan^2\theta)$ $= 3\tan^2\theta - 1$	**A1**	e.g. $4\dfrac{\sin^2\theta}{\cos^2\theta} - \dfrac{\sin^2\theta + \cos^2\theta}{\cos^2\theta}$ $= 4\tan^2\theta - \tan^2\theta - 1$ $= 3\tan^2\theta - 1$
3(b)	$\tan\theta = [\pm]\sqrt{\dfrac{2}{3}}$ oe	**M2**	**M1** for $\tan^2\theta = \dfrac{2}{3}$ oe
	$[\theta =]$ 39.2 or 39.23 to 39.232 $[\theta =]$ 140.8 or 140.76 to 140.77 and no extras in range	**A2**	**A1** for either one correct, ignoring extras

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