Question	Answer	Marks	Guidance
7(a)	$\frac{dy}{dx}=\frac{(2x+1)\frac{6x}{3x^2-5}-2\ln(3x^2-5)}{(2x+1)^2}$ or $\frac{dy}{dx}=(2x+1)^{-1}\frac{6x}{3x^2-5}-2(2x+1)^{-2}\ln(3x^2-5)$	**3**	**B1** for $\frac{6x}{3x^2-5}$ **M1** for attempt at a quotient or equivalent product **A1** for all terms other than $\frac{6x}{3x^2-5}$ correct
	When $x=\sqrt{2}$, $y=0$	**B1**	May be implied
	When $x=\sqrt{2}$, $\frac{dy}{dx}=\frac{6\sqrt{2}}{2\sqrt{2}+1}$ or $\frac{24-6\sqrt{2}}{7}$ or 2.22 oe Normal: $y=-\frac{(2\sqrt{2}+1)}{6\sqrt{2}}(x-\sqrt{2})$ oe or $y=-\frac{7}{24-6\sqrt{2}}(x-\sqrt{2})$ oe or $y=-\frac{1}{2.22}(x-\sqrt{2})$ oe or $y=-\frac{4+\sqrt{2}}{12}(x-\sqrt{2})$ oe or $y=-\frac{9+4\sqrt{2}}{24+6\sqrt{2}}(x-\sqrt{2})$ oe $y=-0.451x+0.638$	**2**	**M1** for attempt at normal using *their* y and *their* perp gradient **A1** Allow equivalent surd forms
7(b)	$\left(\frac{6\sqrt{2}}{2\sqrt{2}+1}\right)h$ or $\frac{24-6\sqrt{2}}{7}h$ or other equivalent surd forms, or $2.22h$	**B1**	**FT** on *their* $\frac{dy}{dx}$ from **(a)**
8(a)	${}^{12}C_3\times{}^{9}C_4=220\times126$ or ${}^{12}C_5\times{}^{7}C_4=792\times35$ or ${}^{12}C_4\times{}^{8}C_5=495\times56$ or other equivalents 27720	**3**	**B1** for one correct combination in a product of 2 or 3 combinations Must be numeric **B1** for a second appropriate combination in the same product Must be numeric
8(b)(i)	120	**B1**	
8(b)(ii)	48	**B1**	