Question	Answer	Marks	Partial Marks
8(a)	[Gradient =] $\frac{15.4-10.4}{4-2}$ oe soi	**M1**	
	10.4 = *their*2.5 × 2 + *c* or 15.4 = *their*2.5 × 4 + *c* or $\frac{y-10.4}{x-2}=$ *their*2.5 or $\frac{y-15.4}{x-4}=$ *their*2.5	**M1**	**FT** *their* gradient
	[Gradient =] 2.5 soi and [intercept =] 5.4 soi	**A1**	
	$\sqrt{y}=2.5\log_2(x+1)+5.4$ oe isw	**A1**	
	Alternative method		
	10.4 = 2*m* + *c* and 15.4 = 4*m* + *c* and solving to find *m* or *c*	**(M1)**	
	Use *their m* or *c* to find *their c* or *m*	**(M1)**	
	m = 2.5 and *c* = 5.4	**(A1)**	
	$\sqrt{y}=2.5\log_2(x+1)+5.4$ oe isw	**(A1)**	
8(b)	$\frac{5929}{25}$ or 237.16	**B1**	
8(c)	$5=$ *their*$2.5\log_2(x+1)+$ *their*5.4 and rearrange to make $\log_2(x+1)$ the subject	**M1**	**FT** *their* equation from **(a)** of correct form with $m \neq 1$ or 0, and $c \neq 0$ Condone any base
	$-\frac{4}{25}=\log_2(x+1)$ oe	**A1**	Condone any base
	$x=-0.105$ or –0.1049[74…] rot to 4 or more sf	**A1**	
9(a)	$\frac{dy}{dx}=3x^2+2x-4$	**M2**	**M1** for any two terms correct
	$x=1\rightarrow\frac{dy}{dx}=1$	**A1**	
	$[m_\perp =]\ -1$	**M1**	**FT** $\frac{-1}{\text{their}1}$
	$y-4=-1(x-1)$ oe isw	**A1**	**FT** *their* $m_\perp$

Question	Answer	Marks	Partial Marks
9(b)	$x^3 + x^2 - 4x + 6 = their(-x + 5)$ $\rightarrow \quad x^3 + x^2 - 3x + 1\ [= 0]$	**M1**	**FT** *their* linear equation of the form $y = mx + c$ where $m \neq 0$ and $c \neq 0$ from **(a)**
	Correct quadratic factor: $x^2 + 2x - 1$	**B2**	**B1** for any two out of three terms correct Must be from the correct cubic
	Solves *their* $(x^2 + 2x - 1) = 0$ using the formula or by completing the square	**M1**	**dep** on M1 and valid attempt at finding quadratic factor **M0** if *their* quadratic factor does not have real roots
	$\frac{-2 \pm \sqrt{8}}{2}$ isw or $\frac{-2 \pm 2\sqrt{2}}{2}$ isw	**A1**	
10(a)	Eliminate one unknown using two correct equations e.g. $d = 4x - 4$ oe $d = 3x + 6$ oe and solve as far as $x = \ldots$ or $d = \ldots$	**M2**	**B1** for one correct equation seen, e.g. $d = 4x - 4$ oe or $d = 3x + 6$ oe or $2d = 7x + 2$ oe May come from the sum of terms, e.g. $11x - 3d = 2$
	$x = 10$	**A1**	
	$d = 36$	**A1**	