Question number	Scheme	Marks
6 (a)	$y = x^2\sqrt{(2x-3)} \Rightarrow \frac{dy}{dx} = x^2 \times (2x-3)^{-\frac{1}{2}} + (2x-3)^{\frac{1}{2}} \times 2x$	M1A1
	$\frac{dy}{dx} = \frac{5x^2-6x}{\sqrt{(2x-3)}} = \frac{x(5x-6)}{\sqrt{(2x-3)}}$ * cso	dM1A1 cso (4)
(b)	$x = 2 \Rightarrow \frac{dy}{dx} = \frac{2(10-6)}{1} = 8$	B1 (1)
(c)	Gradient of normal $= -\frac{1}{8}$	B1ft
	$y = 2^2\sqrt{(2\times 2-3)} = '4'$	B1
	$(y-4) = '-\frac{1}{8}'(x-2)$	M1A1ft
	$x + 8y - 34 = 0$	A1 (5) [10]

Additional Notes

Part	Mark	Guidance
(a)	M1	An attempt to differentiate each term and to use product rule. Minimally acceptable attempt for the award of this mark is given below: $\frac{dy}{dx} = lx\sqrt{2x-3} + x^2k(2x-3)^{-\frac{1}{2}}$
	A1	Correct unsimplified $\frac{dy}{dx} = x^2 \times (2x-3)^{-\frac{1}{2}} + (2x-3)^{\frac{1}{2}} \times 2x$
	dM1	For an attempt to use a common denominator to simplify their $\frac{dy}{dx}$ Minimally acceptable attempt; $\frac{lx\sqrt{2x-3} \times \sqrt{2x-3} + x^2k}{m(2x-3)^{\frac{1}{2}}}$ where k, l and m are constants which must be consistent from their $\frac{dy}{dx}$. Do not accept incorrect work here. **This is an A mark in Epen2**
	A1	For the correct expression as shown in the question. cso **Note: This is a show question** – every step must be correct for the award of this mark.
(b)	B1	For $\frac{dy}{dx} = 8$
(c)	B1ft	For gradient of normal $= -\frac{1}{8}$ (Follow through their answer to part (b)
	B1	For $y = 4$
	M1	Uses either the formula correctly with their values of y and their **gradient of the normal (**their gradient of the normal cannot be their $\frac{dy}{dx}$) or uses $y = mx + c$ with their values for y and m. If they use $y = mx + c$ award this mark when they find a value for c.
	A1	For a correct equation in any form with the correct values
	A1	For the correct equation in the specified form. Accept any form with integer coefficients with all terms on one side; • $x + 8y - 34 = 0$, $8y + x - 34 = 0$ • $34 - x - 8y = 0$, $34 - 8y - x = 0$