Question number	Scheme	Marks
5(a)	$\dfrac{dy}{dx} = (2x-1)^{\frac{1}{2}} \times 3 + 3x \times (2x-1)^{-\frac{1}{2}} \times \dfrac{1}{2} \times 2$	M1A1A1
	$\Rightarrow \dfrac{3 \times (2x-1) + 3x}{(2x-1)^{\frac{1}{2}}}, \Rightarrow \dfrac{6x-3+3x}{(2x-1)^{\frac{1}{2}}} \Rightarrow \dfrac{9x-3}{(2x-1)^{\frac{1}{2}}} = \dfrac{3(3x-1)}{\sqrt{(2x-1)}}$ **✱**	dM1,A1cso (5)
(b)	$\dfrac{dy}{dx} = \dfrac{3(3 \times 1 - 1)}{\sqrt{2 \times 1 - 1}} = 6$	B1
	Gradient of normal $= -\dfrac{1}{6}$	B1ft
	$y = 3 \times 1 \times \sqrt{2 \times 1 - 1} = 3$	B1
	$y - 3 = -\dfrac{1}{6}(x-1), \Rightarrow 6y + x - 19 = 0$ oe	M1A1,A1 (6)
		[11]

(a) M1 Attempt the differentiation using the product rule. Must have two terms added,

  A1 NB M1 on e-PEN   Either term correct

  A1 Other term correct   Power or square root form for both.

  NB: $\dfrac{1}{2} \times 2$ may be missing as $= 1$

dM1 Write their two terms over a common denominator, depends on the first M mark.

A1cso Simplify to the GIVEN answer with no errors seen.

(b)

  B1 Correct value for dy/dx at $x = 1$

  B1ft Correct gradient of normal, follow through their dy/dx

  B1 Correct value of y at $x = 1$

  M1 Substitute their gradient of normal and coordinates in $y = mx + c$ Use of value of dy/dx

     scores M0

  A1 Correct values substituted

  A1 Correct equation with integer coefficients, terms in any order (can have 4 terms)