

Question number	Scheme	Marks
9.	<p>(a) $x = 2$ oe</p> <p>(b) $\frac{dy}{dx} = \frac{4x(3x-6) - 3(2x^2-6)}{(3x-6)^2}$</p> <p>$\frac{dy}{dx} = 0 \quad 12x^2 - 24x - 6x^2 + 18 = 0$</p> <p>$x^2 - 4x + 3 = 0$</p> <p>$(x-3)(x-1) = 0$</p> <p>$x = 3 \quad y = \frac{2 \times 9 - 6}{9 - 6} = \frac{12}{3} \quad (3, 4)$</p> <p>$x = 1 \quad y = \frac{-4}{-3} = \frac{4}{3} \quad (1, \frac{4}{3})$</p> <p>(c) $x = 0 \quad y = 1$</p> <p>$\frac{dy}{dx} = \frac{18}{36} = \frac{1}{2} \quad \text{grad. normal} = -2$</p> <p>eqn. normal: $y - 1 = -2x$ oe</p> <p>(d) $-2x + 1 = \frac{2x^2 - 6}{3x - 6}$</p> <p>$-6x^2 + 15x - 6 = 2x^2 - 6$</p> <p>$8x^2 - 15x = 0$</p> <p>$(x = 0 \text{ (at A)}) \quad \therefore \text{at B } x = \frac{15}{8}$</p>	<p>B1</p> <p>M1A1A1</p> <p>M1</p> <p>M1</p> <p>A1</p> <p>A1</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>M1</p> <p>M1A1</p> <p>A1 (15)</p>