

Question number	Scheme	Marks
3 (a)	$\frac{dy}{dx} = 2e^{2x}\sqrt{5x-3} + \frac{5e^{2x}}{2\sqrt{5x-3}}$	M1 A1 A1 (3)
(b)	$\frac{dy}{dx} = \frac{3x^2 \cos 3x - x^3(-3 \sin 3x)}{(\cos 3x)^2}$	M1 A1 A1 (3)
Total 6 marks		

Part	Mark	Notes
(a)	M1	For use of the product rule. Sum of two terms (either way round) There must be an attempt to differentiate both terms. See below. $(5x-3)^{\frac{1}{2}} \Rightarrow \frac{1}{2} \times k \times (5x-3)^{-\frac{1}{2}} \quad k \neq 0$ $e^{2x} \Rightarrow l e^{2x} \quad l \neq 0$
	A1	For either term correct $2e^{2x}\sqrt{5x-3}$ or $\frac{5e^{2x}}{2\sqrt{5x-3}}$
	A1	For the correct derivative. $\frac{dy}{dx} = 2e^{2x}\sqrt{5x-3} + \frac{5e^{2x}}{2\sqrt{5x-3}}$ Or $\frac{dy}{dx} = 2e^{2x}(5x-3)^{\frac{1}{2}} + \frac{5}{2}e^{2x}(5x-3)^{-\frac{1}{2}}$ oe
(b)	M1	For an attempt at the use of the quotient rule. - There must be an acceptable attempt to differentiate both terms $x^3 \Rightarrow 3x^2$ $\cos(3x) \Rightarrow -m \sin 3x \quad m \neq 0$ - The denominator must be squared. - The terms in the numerator must be subtracted in either order.
	A1	For one term correct $3x^2 \cos 3x$ or $x^3(-3 \sin 3x)$
	A1	For the fully correct derivative.