Question Number	Scheme	Marks
1	$y = 2 + 10x^{\frac{1}{2}} - 2x^{\frac{3}{2}}$	
(a)	$\frac{dy}{dx} = 5x^{-\frac{1}{2}} - 3x^{\frac{1}{2}}$	M1 A1 A1
		(3)
(b)	$x = 2 \Rightarrow \quad \frac{dy}{dx} = \frac{5}{\sqrt{2}} - 3\sqrt{2}$	M1
	$\frac{5}{\sqrt{2}} - 3\sqrt{2} = \frac{5}{2}\sqrt{2} - 3\sqrt{2} = -\frac{1}{2}\sqrt{2}$	A1
		(2)
		(5 marks)

(a) Mark (a) and (b) together.

M1: For ANY one of: $10x^{\frac{1}{2}} \to ...x^{-\frac{1}{2}}$ or $-2x^{\frac{3}{2}} \to ...x^{\frac{1}{2}}$ or $2 \to 0$

A1: For one simplified term e.g. either $10x^{\frac{1}{2}} \to 5x^{-\frac{1}{2}}$ or $-2x^{\frac{3}{2}} \to -3x^{\frac{1}{2}}$

A1: $\left(\frac{dy}{dx} =\right) 5x^{-\frac{1}{2}} - 3x^{\frac{1}{2}}$. Allow e.g. $\left(\frac{dy}{dx} =\right) \frac{5}{\sqrt{x}} - 3\sqrt{x}$. The "$\frac{dy}{dx} =$" is not required. Condone "+ 0" as part of their answer.

There must be no other terms e.g. "+ c" or e.g. $\left(\frac{dy}{dx} =\right) 2 + 5x^{-\frac{1}{2}} - 3x^{\frac{1}{2}}$ but apply isw if possible once a correct simplified derivative with no extra terms is seen.

(b)

M1: For an attempt to substitute $x = 2$ fully into their $\frac{dy}{dx}$ which is not y e.g. it must be a "changed" function which could even come from integration.

All that is required is the substitution so allow for e.g. $5(2)^{-\frac{1}{2}} - 3(2)^{\frac{1}{2}}$

This mark may be implied by their answer or e.g. a decimal answer of awrt –0.7 following a correct derivative.

Do **not** allow this mark if they have e.g. $\left(\frac{dy}{dx} =\right) 5x^{-\frac{1}{2}} - 3x^{\frac{1}{2}} + c$ in part (a) **AND** subsequently go on to try and establish a value for "c" using $x = 2$.

A1: $-\frac{1}{2}\sqrt{2}$ or exact simplified equivalent e.g. $-\frac{1}{\sqrt{2}}, -0.5\sqrt{2}, -2^{-\frac{1}{2}}, -2^{-0.5}$ **following at least one intermediate line of working**.

E.g. $\frac{5}{\sqrt{x}} - 3\sqrt{x} = \frac{5}{\sqrt{2}} - 3\sqrt{2} = -\frac{1}{\sqrt{2}}$ scores M1A0