

Question	Scheme	Marks
2	$\frac{dy}{dx} = \sin 2x \times \frac{1}{2} \times 2 \times (3+2x)^{-\frac{1}{2}} + (3+2x)^{\frac{1}{2}} \times 2 \times \cos 2x$	M1A1A1
	$\frac{dy}{dx} = \frac{\sin 2x}{\sqrt{3+2x}} + 2 \times \sqrt{(3+2x)} \cos 2x = \frac{\sin 2x + 2(3+2x)\cos 2x}{\sqrt{3+2x}} = \dots$	dM1
	$\frac{dy}{dx} = \frac{\sin 2x + (6+4x)\cos 2x}{\sqrt{3+2x}} \quad *$	A1 cso
	Where $A = 6$ and $B = 4$	[5]
Total 5 marks		

Mark	Notes
<b>M1</b>	<p>For an attempt to apply product rule: An attempt is as follows.</p> <ul style="list-style-type: none"> <li>The formula used must be correct. <math>\frac{dy}{dx} = uv' + vu'</math></li> <li>Minimally acceptable differentiation used within a correct formula.  <math>\sin 2x \rightarrow k \cos 2x</math> and <math>\sqrt{3+2x} \rightarrow l(3+2x)^{-\frac{1}{2}}</math>            where <math>k</math> and <math>l</math> are a positive integers and <math>k, l \neq 0</math>            (You will see <math>l = 1</math> without other working which is correct)</li> </ul>
<b>A1</b>	<p>One term correct – (simplification not required) and the other minimally acceptable.</p> <p>Either <math>\sin 2x \times \frac{1}{2} \times 2 \times (3+2x)^{-\frac{1}{2}}</math>            Or <math>(3+2x)^{\frac{1}{2}} \times 2 \times \cos 2x</math></p>
<b>A1</b>	<p>Fully correct – simplification not required</p> $\frac{dy}{dx} = \sin 2x \times \frac{1}{2} \times 2 \times (3+2x)^{-\frac{1}{2}} + (3+2x)^{\frac{1}{2}} \times 2 \times \cos 2x$
<b>dM1</b>	<p>For <b>correct</b> use of <math>\sqrt{3+2x}</math> or <math>(3+2x)^{\frac{1}{2}}</math> as a common denominator.  <b>NB:</b> This mark is dependent on the first M mark scored.</p>
<b>A1 cso</b>	<p>For the correct <math>\frac{dy}{dx}</math> as shown with no erroneous or missing working.</p> <p>Allow embedded values. E.g., <math>\frac{dy}{dx} = \frac{\sin 2x + (6+4x)\cos 2x}{\sqrt{3+2x}}</math> is dM1A1</p>