Question	Answer	Marks	Partial Marks
5	$\frac{dy}{dx} = 10e^{2x-1}$ [+0] oe	**M2**	**M1** for $\frac{dy}{dx} = ke^{2x-1}$, $k \neq 10$ or **SCM1** for $\frac{dy}{dx} = 10e^{2x-1} + c$ where c is algebraic or numerical
	$\left.\frac{dy}{dx}\right\|_{x=1} = 10e$ and $y = 6e$	**A1**	**FT** *their* $\frac{dy}{dx}$ provided **M1** or **SCM1** awarded and a value is found
	$y - 6e = 10e(x-1)$ oe or $y = 10ex + c$ and $6e = 10e + c$	**M1**	**FT** *their* $\left.\frac{dy}{dx}\right\|_{x=1}$ and *their y*
	$y = 10ex - 4e$ isw	**A1**	
	[x-coordinate of P =] 0.4 oe, isw	**A1**	**dep** on correct equation of tangent with exact values
6(a)	Convincing correct statement from which the answer can be easily determined e.g. $\sin^3 x\left(\frac{1}{\sin x} \times \frac{\sin x}{\cos x}\right)$ oe or $\sin^2 x\left(\sin x \times \frac{1}{\sin x} \times \frac{1}{\cot x}\right)$ oe or $\sin^3 x\left(\frac{1}{\sin x} \div \frac{\cos x}{\sin x}\right) = \sin^3 x\left(\frac{1}{\cos x}\right)$ oe or $\sin^3 x\left(\frac{1}{\sin x} \div \frac{1}{\tan x}\right) = \sin^3 x\left(\frac{1}{\sin x} \times \tan x\right)$ oe	**2**	**M1** for either cosec$x$ correctly written as $\frac{1}{\sin x}$ oe seen in a correct expression or for cot$x$ correctly written as $\frac{\cos x}{\sin x}$ or $\frac{1}{\tan x}$ oe seen in a correct expression e.g. $\sin^3 x(\text{cosec}\, x \times \tan x)$ or $\sin^3 x\left(\text{cosec}\, x \div \frac{\cos x}{\sin x}\right)$ or $\sin^3 x\left(\frac{1}{\sin x} \div \frac{\cos x}{\sin x}\right)$ or $\sin^3 x\left(\frac{1}{\sin x} \div \frac{1}{\tan x}\right)$
	Correct completion to given answer: $\sin^2 x \tan x$	**A1**	

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Partial Marks</th></tr>
<tr><td rowspan="4">6(b)</td><td>Factorises:
$\tan x\left(\cos^2 x-\frac{1}{2}\right)=0$ oe or
$\tan x\left(\frac{1}{2}-\sin^2 x\right)=0$ oe or
correctly rewrites and then factorises:
$\sin x\left(\cos^2 x-\frac{1}{2}\right)=0$ oe or
$\sin x\left(\frac{1}{2}-\sin^2 x\right)=0$ oe or
$\tan x\left(1-\tan^2 x\right)=0$ oe</td><td>M1</td><td>Note: division by tanx is M0

Note: division by sinx is M0</td></tr>
<tr><td>[tanx = 0 or sinx = 0] [x =] 0</td><td>A1</td><td></td></tr>
<tr><td>cosx = [±]$\sqrt{\frac{1}{2}}$ oe or
sinx = [±]$\sqrt{\frac{1}{2}}$ oe or
tan x = [±]1</td><td>M1</td><td>nfww</td></tr>
<tr><td>[x =]
$\pm\frac{\pi}{4}$ or ± 0.785 or ± 0.7853 to ± 0.7854,

$\pm\frac{3\pi}{4}$ or ± 2.36 or ± 2.356 to ± 2.3562</td><td>A2</td><td>with no extras in range; nfww

A1 for any two out of four correct, ignoring extras</td></tr>
<tr><td>7(a)</td><td>282 240</td><td>2</td><td>M1 for 9! – 2! × 8! oe</td></tr>
<tr><td>7(b)</td><td>120</td><td>2</td><td>M1 for 5! or $^5P_5$ oe</td></tr>
<tr><td>8(a)</td><td>Points plotted at
<table><tr><td>x</td><td>15</td><td>30</td><td>45</td><td>60</td><td>75</td></tr><tr><td>lny</td><td>2.3</td><td>2.5 or 2.6</td><td>3.1</td><td>3.5 or 3.6</td><td>3.9</td></tr></table>soi
and
single, ruled, straight line of best fit drawn</td><td>B2</td><td>B1 for at least 4 correctly plotted points</td></tr>
</table>

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