

Question	Answer	Marks	Guidance
1	$\frac{3x}{(2-x)(4+x^2)} = \frac{A}{2-x} + \frac{Bx+C}{4+x^2}$ $\Rightarrow 3x = A(4+x^2) + (Bx+C)(2-x)$ $x=2 \Rightarrow 6=8A, A=\frac{3}{4}$ $x^2 \text{ coeffs: } 0 = A - B \Rightarrow B = \frac{3}{4}$ $\text{constants: } 0 = 4A + 2C \Rightarrow C = -1\frac{1}{2}$	<p>M1</p> <p>M1</p> <p>A1</p> <p>A1</p> <p>A1</p> <p><b>[5]</b></p>	<p>correct form of partial fractions (condone additional coeffs eg <math>\frac{Ax+B}{2-x} + \frac{Cx+D}{4+x^2}</math> * for M1)</p> <p><b>BUT</b> <math>\frac{A}{2-x} + \frac{B}{4+x^2}</math> ** is M0 )</p> <p>Multiplying through oe and substituting values or equating coeffs at <b>LEAST AS FAR AS FINDING A VALUE</b> for one of their unknowns (even if incorrect) Can award in cases * and ** above Condone a sign error or single computational error for M1 but not a conceptual error Eg <math>3x = A(2-x) + (Bx+C)(4+x^2)</math> is M0 <math>3x(2-x)(4+x^2) = A(4+x^2) + (Bx+C)(2-x)</math> is M0 Do not condone missing brackets unless it is clear from subsequent work that they were implied. Eg <math>3x = A(4+x^2) + Bx + C(2-x) = 4A + Ax^2 + Bx + 2C - Cx</math> is M0 <math>= 4A + Ax^2 + 2Bx - Bx^2 + 2C - Cx</math> is M1</p> <p>oe www [SC B1 <math>A = 3/4</math> from cover up rule can be applied, then the M1 applies to the other coefficients]</p> <p><b>NB</b> <math>\frac{A}{2-x} + \frac{B}{4+x^2} \Rightarrow A = 3/4</math> is A0 ww (wrong working)</p> <p>oe www</p> <p>oe www [In the case of * above, all 4 constants are needed for the final A1] Ignore subsequent errors when recompiling the final solution provided that the coeffs were all correct</p>

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2	$(4+x)^{3/2} = 4^{3/2} \left(1 + \frac{1}{4}x\right)^{3/2}$  $= 8 \left(1 + \frac{3}{2} \left(\frac{1}{4}x\right) + \frac{3}{2} \cdot \frac{1}{2} \cdot \frac{1}{2!} \left(\frac{1}{4}x\right)^2 + \dots\right)$  $= 8 + 3x$ <div style="text-align: right;"><math>+ 3/16 x^2</math></div>  Valid for $-4 < x < 4$ or $ x  < 4$	M1      M1   A1 A1  B1     [5]	dealing with the ‘4’ to obtain $4^{3/2} \left(1 + \frac{x}{4}\right)^{3/2}$  (or expanding as $4^{3/2} + \frac{3}{2} 4^{1/2} x + \left(\frac{3}{2}\right)\left(\frac{1}{2}\right) 4^{-1/2} \frac{x^2}{2!} + \dots$ and having all the powers of 4 correct)  correct binomial coeffs for n = 3/2 ie 1, 3/2, 3/2.1/2.1/2! Not nCr form Indep of coeff of x Indep of first M1 8 + 3x                      www ...+ 3/16 x <sup>2</sup> www Ignore subsequent terms accept ≤ s or a combination of < and ≤ , but not −4 > x > 4,  x  > 4, or say −4 < x condone −4 <  x  < 4 Indep of all other marks  Allow MR throughout this question for n = m/2 where m ∈ N, and m odd and then −1 MR provided it is at least as difficult as the original.

Question			Answer	Marks	Guidance												
3	(i)		<table border="1"> <tr> <td>x</td><td>0</td><td>0.1963</td><td>0.3927</td><td>0.5890</td><td>0.7854</td></tr> <tr> <td>y</td><td>0</td><td>0.4493</td><td>0.6792</td><td>0.9498</td><td>1.3254</td></tr> </table> $A = (\pi/32) [(0 + 1.3254) + 2(0.4493 + 0.6792 + 0.9498)]$ $= 0.538$	x	0	0.1963	0.3927	0.5890	0.7854	y	0	0.4493	0.6792	0.9498	1.3254	<p>B2,1,0</p> <p>M1</p> <p>A1</p> <p>[4]</p>	<p>For values 0.4493,0.6792,0.9498 (<b>4dp</b> or better soi) [accept truncated to 4 figs after dec point]</p> <p>[cannot assume values of form <math>(\pi/16)^3 + \sqrt{(\sin \pi/16)}</math> are correct unless followed by correct total at some later stage as some will be in degree mode]</p> <p>Use of the trapezium rule. Trapezium rule formula for <b>4 strips</b> must be seen, with or without substitution seen. <b>Correct h must be soi.</b> [accept separate trapezia added]</p> <p>0.538 <b>www 3dp only</b> (NB using 1.325 is ww)</p> <p>SC B0 0.538 without any working as no indication of strips or method used</p> <p>SC B1 0.538 with some indication of 4 strips but no values seen</p> <p>Correct values followed by 0.538 scores B2 B0</p> <p>Correct values followed by correct formula for 4 strips, with or without substitution seen, then <math>A = 0.538</math> scores 4/4.</p> <p>Correct formula for 4 strips and values of form <math>((\pi/16)^3 + \sqrt{(\sin \pi/16)})...</math> followed by correct answer scores 4/4 (or <math>\frac{3}{4}</math> with wrong dp)</p> <p><b>NB Values given in the table to only 3dp give apparently the correct answer, but scores B0,M1A0 ww</b></p>
x	0	0.1963	0.3927	0.5890	0.7854												
y	0	0.4493	0.6792	0.9498	1.3254												
3	(ii)		Not possible to say, eg some trapezia are above and some below curve oe.	B1	Need a reason. Must be without further calculation.												
				[1]													



Question			Answer	Marks	Guidance
4	(ii)		$\beta = \alpha$ $\cos 2\alpha = \frac{1 - \tan^2 \alpha}{\sec^2 \alpha}$ $= \frac{1 - \tan^2 \alpha}{1 + \tan^2 \alpha}$	M1	$\beta = \alpha$ used , Need to see $\sec^2 \alpha$
				A1	Use of $\sec^2 \alpha = 1 + \tan^2 \alpha$ to give required result Answer Given
			OR, without Hence, $\cos 2\alpha = \cos^2 \alpha \left(1 - \frac{\sin^2 \alpha}{\cos^2 \alpha}\right)$ $= \frac{1}{\sec^2 \alpha} (1 - \tan^2 \alpha)$ $= \frac{1 - \tan^2 \alpha}{1 + \tan^2 \alpha}$	M1	Use of $\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha$ soi Simplifying and using $\sec^2 \alpha = 1 + \tan^2 \alpha$ to final answer Answer Given Accept working in reverse to show RHS=LHS, or showing equivalent
				[2]	
4	(iii)		$\cos 2\theta = \frac{1}{2}$ $2\theta = 60^\circ, 300^\circ$ $\theta = 30^\circ, 150^\circ$	M1	Soi or from $\tan^2 \theta = 1/3$ oe from $\sin^2 \theta$ or $\cos^2 \theta$
				A1	First correct solution
				A1	Second correct solution and no others in the range
					SC B1 for $\pi/6$ and $5\pi/6$ and no others in the range
				[3]	

Question		Answer	Marks	Guidance
5	(i)	EITHER $x = e^{3t}, y = te^{2t}$ $dy/dt = 2te^{2t} + e^{2t}$ $\Rightarrow dy/dx = (2te^{2t} + e^{2t})/3e^{3t}$  when $t = 1, dy/dx = 3e^2/3e^3 = 1/e$	B1 M1 A1 A1	soi Their $dy/dt \div dx/dt$ in terms of $t$ oe cao allow for unsimplified form even if subsequently cancelled incorrectly ie can isw cao www must be simplified to $1/e$ oe
		OR  $3t = \ln x, y = \frac{\ln x}{3} e^{2/3 \ln x} = \frac{x^{2/3} \ln x}{3}$  $dy/dx = \frac{1}{3} x^{2/3} \frac{1}{x} + \ln x \frac{2}{9} x^{-1/3}$  $= \frac{1}{3e^t} + \frac{2t}{3e^t}$ $dy/dx = 1/3e + 2/3e = 1/e$	B1  M1  A1  A1  <b>[4]</b>	Any equivalent form of $y$ in terms of $x$ only  Differentiating their $y$ provided not eased ie need a product including $\ln x$ and $x^p$ and subst $x = e^{3t}$ to obtain $dy/dx$ in terms of $t$ oe cao  www cao <b>exact only</b> must be simplified to $1/e$ or $e^{-1}$
5	(ii)	$3t = \ln x \Rightarrow t = (\ln x)/3$ $y = (\ln x) / 3e^{(2 \ln x)/3}$  $y = \frac{1}{3} x^{\frac{2}{3}} \ln x$	B1 M1 A1    <b>[3]</b>	Finding $t$ correctly in terms of $x$ Subst in $y$ using their $t$ Required form $ax^b \ln x$ only  NB If this work was already done in 5(i), marks can only be scored in 5(ii) if candidate specifically refers in this part to their part (i).

Question	Answer	Marks	Guidance
6	$y = (1 + 2x^2)^{\frac{1}{3}} \Rightarrow y^3 = 1 + 2x^2$ $\Rightarrow x^2 = \frac{1}{2}(y^3 - 1)$ $V = \int_1^2 \pi x^2 \, dy = \frac{1}{2} \pi \int_1^2 (y^3 - 1) \, dy$ $= \frac{1}{2} \pi \left[ \frac{1}{4} y^4 - y \right]_1^2 = \frac{1}{2} \pi \left( 2 + \frac{3}{4} \right)$ $= \frac{11}{8} \pi$	<p>M1</p> <p>M1</p> <p>A1</p> <p>B1</p> <p>M1</p> <p>A1</p> <p>[6]</p>	<p>finding <math>x^2</math> (or <math>x</math>) correctly in terms of <math>y</math></p> <p>For M1 need <math>\int \pi x^2 dy</math> with substitution for their <math>x^2</math> (in terms of <math>y</math> only)</p> <p>Condone absence of <math>dy</math> throughout if intentions clear. (need <math>\pi</math>)</p> <p>www For A1 it must be correct with correct limits 1 and 2, but they may appear later</p> <p><math>1/2[y^4/4 - y]</math> independent of <math>\pi</math> and limits</p> <p>substituting both their limits in correct order in correct expression, condone a minor slip for M1</p> <p>(if using <math>y = 0</math> as lower limit then '-0' is enough)</p> <p>condone absence of <math>\pi</math> for M1</p> <p>oe exact only www (<math>1\frac{3}{8} \pi</math> or <math>1.375\pi</math>)</p>

Question	Answer	Marks	Guidance
7 (i)	$AB = \sqrt{5^2 + (-2)^2} = \sqrt{29}$ $AC = \sqrt{3^2 + 4^2} = 5$ $\cos \theta = \frac{\begin{pmatrix} 5 \\ 0 \\ -2 \end{pmatrix} \cdot \begin{pmatrix} 3 \\ 4 \\ 0 \end{pmatrix}}{\sqrt{29} \cdot 5} = \frac{15 + 0 + 0}{5\sqrt{29}} = 0.5571$ $\Rightarrow \theta = 56.15^\circ$ $\text{Area} = \frac{1}{2} \times 5 \times \sqrt{29} \times \sin \theta$ $= 11.18$	<p>B1</p> <p>B1</p> <p>M1</p> <p>A1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>[7]</p>	<p>5.39 or better (condone sign error in vector for B1)</p> <p>Accept <math>\sqrt{25}</math> (condone sign error in vector for B1)</p> <p><math>\cos \theta = \frac{\text{scalar product of AB with AC}}{ AB  \cdot  AC }</math> (accept BA/CA)</p> <p><b>with substitution</b> condone a single numerical error provided method is clearly understood [OR Cosine Rule, as far as <math>\cos \theta =</math> correct numerical expression ]</p> <p><b>www</b> <math>\pm 0.5571, 0.557, 15/5\sqrt{29}, 15/\sqrt{25}\sqrt{29}</math> oe or better soi ( <math>\pm</math> for method only)</p> <p>www Accept answers that round to <math>56.1^\circ</math> or <math>56.2^\circ</math> or 0.98 radians (or better)</p> <p><b>NB vector <math>5\mathbf{i}+0\mathbf{j}+2\mathbf{k}</math> leads to apparently correct answer but loses all A marks in part(i)</b></p> <p>Using their AB, AC, <math>\angle</math> CAB. Accept any valid method using trigonometry</p> <p>Accept <math>5\sqrt{5}</math> and answers that round to 11.18 or 11.19 (2dp) <b>www</b> or SCA1 for accurate work soi rounded at the last stage to 11.2 (but not from an incorrect answer, say from an incorrect angle or from say 11.17 or 11.22 stated and rounded to 11.2) We will not accept inaccurate work from over rounded answers for the final mark.</p>



Question			Answer	Marks	Guidance
7	(ii)	(A)	$\overrightarrow{AB} \cdot \begin{pmatrix} 4 \\ -3 \\ 10 \end{pmatrix} = \begin{pmatrix} 5 \\ 0 \\ -2 \end{pmatrix} \cdot \begin{pmatrix} 4 \\ -3 \\ 10 \end{pmatrix} = 5 \cdot 4 + 0 \cdot (-3) + (-2) \cdot 10 = 0$ $\overrightarrow{AC} \cdot \begin{pmatrix} 4 \\ -3 \\ 10 \end{pmatrix} = \begin{pmatrix} 3 \\ 4 \\ 0 \end{pmatrix} \cdot \begin{pmatrix} 4 \\ -3 \\ 10 \end{pmatrix} = 3 \times 4 + 4 \times (-3) + 0 \times 10 = 0$	<p>B1</p> <p>B1</p> <p>[2]</p>	<p>Scalar product with one vector in the plane with numerical expansion shown.</p> <p>Scalar product, as above, with evaluation, with a second vector. <b>NB vectors are not unique</b></p> <p>SCB2 finding the equation of plane first by any valid method (or using vector product) and then clearly stating that the normal is proportional to the coefficients.</p> <p>SC For candidates who substitute all three points in the plane <math>4x-3y+10z=c</math> and show that they give the same result, award M1 If they include a statement explaining why this means that <math>4\mathbf{i}-3\mathbf{j}+10\mathbf{k}</math> is normal they can gain A1.</p>
7	(ii)	(B)	$4x - 3y + 10z = c$ $\Rightarrow 4x - 3y + 10z + 12 = 0$	<p>M1</p> <p>A1</p> <p>[2]</p>	<p>Required form <b>and</b> substituting the co-ordinates of a point on the plane</p> <p>oe If found in (A) it must be clearly referred to in (B) to gain the marks. Do not accept vector equation of the plane, as 'Hence'.</p> <p><math>4\mathbf{i}-3\mathbf{j}+10\mathbf{k} = -12</math> is M1A0</p>

Question			Answer	Marks	Guidance
7	(iii)		$\mathbf{r} = \begin{pmatrix} 0 \\ 4 \\ 5 \end{pmatrix}$	B1	Need $\mathbf{r} = \begin{pmatrix} x \\ y \\ z \end{pmatrix}$
			$\cdot$	B1	oe
			$+ \lambda \begin{pmatrix} 4 \\ -3 \\ 10 \end{pmatrix}$	M1	Subst their $4\lambda, 4 - 3\lambda, 5 + 10\lambda$ in equation of their plane from (ii)
			Meets $4x - 3y + 10z + 12 = 0$ when $16\lambda - 3(4 - 3\lambda) + 10(5 + 10\lambda) + 12 = 0$ $\Rightarrow 125\lambda = -50, \lambda = -0.4$	A1	$\lambda = -0.4$ (NB not unique)
			So meets plane ABC at $(-1.6, 5.2, 1)$	A1 [5]	cao www (condone vector)
7	(iv)		height = $\sqrt{(1.6^2 + (-1.2)^2 + 4^2)} = \sqrt{20}$ volume = $11.18 \times \sqrt{20} / 3 = 16.7$	B1ft B1cao [2]	ft their (iii) 50/3 or answers that round to 16.7 www and not from incorrect answers from (iii) ie not from say (1.6, 2.8, 9)

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8	(i)	<p>Either <math>h = (1 - \frac{1}{2} At)^2 \Rightarrow dh/dt = -A(1 - \frac{1}{2} At)</math>  <math>= -A\sqrt{h}</math>  when <math>t = 0</math>, <math>h = (1 - 0)^2 = 1</math> as required  OR  <math>\int \frac{dh}{\sqrt{h}} = \int -A dt</math>  <math>2h^{1/2} = -At + c</math>  <math>h = \left(\frac{-At + c}{2}\right)^2</math> at <math>t = 0</math>, <math>h = 1</math>, <math>1 = (c/2)^2 \Rightarrow c = 2</math>, <math>h = (1 - At/2)^2</math></p>	<p>M1 A1 B1</p> <p>M1 A1 B1</p> <p>[3]</p>	<p>Including function of a function, need to see middle step AG</p> <p>Separating variables correctly and integrating</p> <p>Including c. [Condone change of c.] Using initial conditions AG</p>
		<p>When <math>t = 20</math>, <math>h = 0</math>  <math>\Rightarrow 1 - 10A = 0</math>, <math>A = 0.1</math>  When the depth is 0.5 m, <math>0.5 = (1 - 0.05t)^2</math>  <math>\Rightarrow 1 - 0.05t = \sqrt{0.5}</math>, <math>t = (1 - \sqrt{0.5})/0.05 = 5.86s</math></p>	<p>M1 A1 M1 A1</p> <p>[4]</p>	<p>Subst and solve for A cao substitute <math>h = 0.5</math> and their A and solve for t www cao accept 5.9</p>

Question			Answer	Marks	Guidance
8	(iii)		$\frac{dh}{dt} = -B \frac{\sqrt{h}}{(1+h)^2}$ $\Rightarrow \int \frac{(1+h)^2}{\sqrt{h}} dh = - \int B dt$	M1	separating variables correctly and intend to integrate <b>both sides</b> (may appear later) [NB reading <b>(1+h)<sup>2</sup></b> as <b>1+h<sup>2</sup></b> eases the question. Do not mark as a MR] In cases where (1+h) <sup>2</sup> is MR as 1+h <sup>2</sup> or incorrectly expanded, as say 1+h+h <sup>2</sup> or 1+h <sup>2</sup> , allow first M1 for correct separation and attempt to integrate and can then score a max of M1M0A0A0A1 (for -Bt+c) A0A0, max 2/7.
			<b>EITHER, LHS</b>		
			$\int \frac{1+2h+h^2}{\sqrt{h}} dh$ $= \int (h^{-1/2} + 2h^{1/2} + h^{3/2}) dh$	M1  A1	expanding (1+h) <sup>2</sup> and dividing by $\sqrt{h}$ to form a one line function of h (indep of first M1) with each term expressed as a single power of h eg must simplify say $1/\sqrt{h} + 2h/\sqrt{h} + h^2/\sqrt{h}$ , condone a single error for M1 (do not need to see integral signs) $h^{-1/2} + 2h^{1/2} + h^{3/2}$ cao dep on second M only -do not need integral signs
			<b>OR, LHS, EITHER</b>		
			$(1+2h+h^2)2h^{1/2} - \int 2h^{1/2}(2+2h)dh$ <p><b>OR</b></p> $h^{1/2} + h^{3/2} + \frac{h^{5/2}}{3} + \int \frac{1}{2} h^{-3/2} (h+h^2 + \frac{h^3}{3}) dh$	M1  A1	using $\int u dv = uv - \int v du$ correct formula used correctly, indep of first M1 condone a single error for M1 if intention clear  cao oe
			$2h^{1/2} + \frac{4h^{3/2}}{3} + \frac{2h^{5/2}}{5}$ $= -Bt + c$ $\Rightarrow 2h^{1/2} + 4h^{3/2}/3 + 2h^{5/2}/5 = -Bt + c$ <p>When t = 0, h = 1 <math>\Rightarrow c = 56/15</math></p> $\Rightarrow h^{1/2}(30 + 20h + 6h^2) = 56 - 15Bt \quad *$	A1  A1  A1  [7]	cao oe, <b>both sides dependent on first M1 mark</b>  cao need -Bt and c for second A1 but the constant may be on either side  from correct work only (accept 3.73 or rounded answers here but not for final A1) or c = -56/15 if constant on opposite side. <b>NB AG must be from all correct exact work including exact c.</b>

Question			Answer	Marks	Guidance
8	(iv)		$h = 0$ when $t = 20$ $\Rightarrow B = 56/300 = 0.187$ When $h = 0.5$ $56 - 2.8t = 29.3449\dots$ $\Rightarrow t = 9.52s$	M1 A1 M1 A1 <b>[4]</b>	Substituting $h = 0, t = 20$ Accept 0.187 Subst their $h = 0.5$ , ft their B and attempt to solve Accept answers that round to 9.5s www.

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1	(i)		<table><tr><td>Group</td><td>P</td><td>Q</td><td>R</td><td>S</td></tr><tr><td>Number of people</td><td>15</td><td>30</td><td>60</td><td>45</td></tr><tr><td>Average number of accidents in a year</td><td>1.5</td><td>4.5</td><td>3</td><td>9</td></tr><tr><td>Average cost of accidents per year</td><td>£7500</td><td>£9000</td><td>£3000</td><td>£4500</td></tr></table>					Group	P	Q	R	S	Number of people	15	30	60	45	Average number of accidents in a year	1.5	4.5	3	9	Average cost of accidents per year	£7500	£9000	£3000	£4500	B1	for all three entries 30,60,45 correct
								Group	P	Q	R	S																	
								Number of people	15	30	60	45																	
								Average number of accidents in a year	1.5	4.5	3	9																	
								Average cost of accidents per year	£7500	£9000	£3000	£4500																	
B1	for all three entries 1.5, 3, 9 correct																												
B1	for 3000,4500 both correct																												
[3]	SC B2 for all entries in any three columns correct																												
1	(ii)		$\text{£}24000 \div 150$  $=\text{£}160$					M1  A1 [2]	Adding their bottom row (7500 + 9000 + ‘3000’ + ‘4500’ = ‘24000’ and dividing by 150 soi (and not divided or multiplied by any additional values) ft their 24000 ÷ 150 (corr to 2dp if inexact)																				
1	(iii)		The 45 members of Group S pay $1.5 \times \text{£}4500 = \text{£}6750$ . So each pays $\text{£}6750 \div 45$ $=\text{£}150$ .					M1  A1 [2]	their 4500 × 1.5 oe soi as part of solution  cao www (must be from correct final column)																				

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2			Basic premium = 35% of driver’s premium  Drivers premium = Basic premium ÷ 0.35 = 2.86    Basic premium ⇒ k = 2.86	M1  A1  [2]	use of 35% or 0.35 oe [not 65, 0.65 unless 1– 0.65]  accept 2.86 or better (k= 2.85714... or 2 6/7 oe)  [ k = 2.9, k = 1/0.35 scores M1A0 ]																
3			<table><tr><th>Year</th><th>% discount</th></tr><tr><td>2007</td><td>0</td></tr><tr><td>2008</td><td>30</td></tr><tr><td>2009</td><td>40</td></tr><tr><td>2010</td><td>50</td></tr><tr><td>2011</td><td>60</td></tr><tr><td>2012</td><td>65</td></tr><tr><td>2013</td><td>65</td></tr><tr><td><b>Total</b></td><td><b>310</b></td></tr></table>  310% of the premium is £3875  The premium is $\frac{£3875 \times 100}{310}$  	Year	% discount	2007	0	2008	30	2009	40	2010	50	2011	60	2012	65	2013	65	<b>Total</b>	<b>310</b>
Year	% discount																				
2007	0																				
2008	30																				
2009	40																				
2010	50																				
2011	60																				
2012	65																				
2013	65																				
<b>Total</b>	<b>310</b>																				

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4	(i)		<p>B1</p> <p>[1]</p>	<p>A sketch. Must be at least for values of x between 18 and 45. Must be correct shape ie descending curve, does not curve up at end, does not cross the horizontal axis (even if extended) ie must <math>\rightarrow 1</math>.</p> <p>Does not need to go through points exactly as a sketch.</p>
4	(ii)	<p>For large values of x, <math>be^{-k(x-17)} \rightarrow 0</math>, and so <math>y \rightarrow a</math> which is 1 in this case.</p>	<p>B1</p> <p>[1]</p>	<p>Need x becoming large or <math>\rightarrow \infty</math>, exponential term <math>\rightarrow 0</math> oe and <math>y \rightarrow a</math>, <math>a = 1</math> or <math>y = 1, a = 1</math> oe</p> <p>NOT just at <math>x = 45, y = 1</math></p>
4	(iii)	<p>Substituting <math>x = 23 \Rightarrow y = 6.6</math></p> <p>This is quite close to the observed value of <math>y = 6</math>.</p>	<p>M1</p> <p>A1</p> <p>[2]</p>	<p>subst <math>x = 23</math> and finding <math>y = 6.6</math> (6.60115...) (or subst <math>y = 6</math> and finding <math>x = 23.3</math> (23.3097...)) Only accept comparing x or y, not coefficients</p> <p>(or close to <math>x = 23</math>) Accept say, <math>y = 6.6 \approx 6</math>. But not say at <math>x = 23, y \approx 6</math> with no evaluation seen Accept if states, say, <math>y = 6.6</math> which is <b>not</b> consistent with <math>y = 6</math> oe</p>



Question			Answer	Marks	Guidance
5	(A)		With no more than 3 points on his licence the driver's premium is not altered: £520	B1	£520
	(B)		The driver now has $3 + 6 = 9$ points. The new premium is $£520 \times 2^{\frac{9}{6}} = £1470.78$	B1	£1470.78 or £1471 [but not £1470.80]
				[2]	