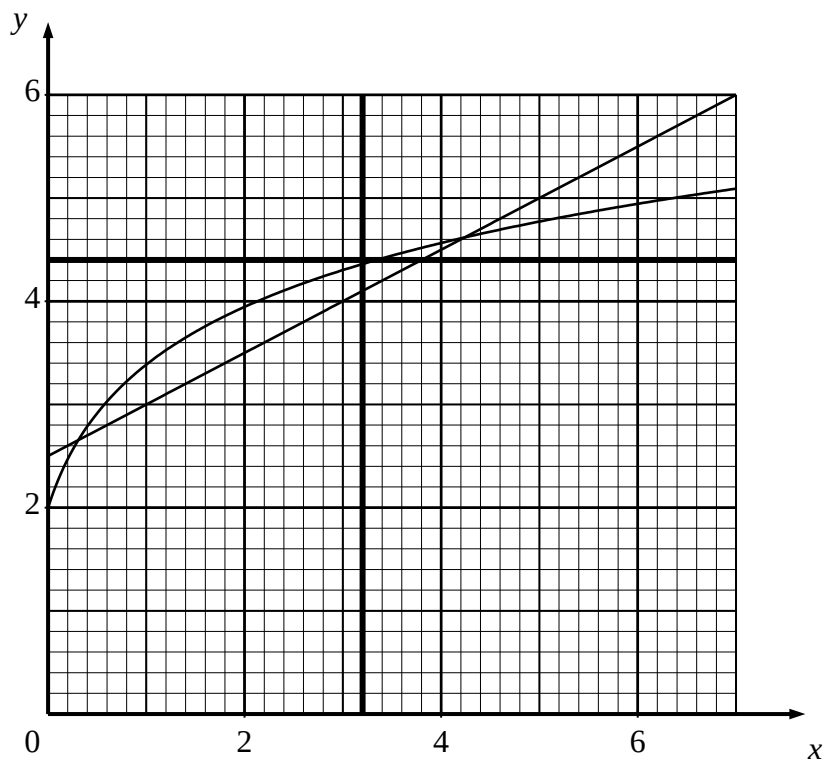
Question number	Scheme	Marks
7 (a)	<table><tr><td>x</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>y</td><td>2</td><td>**3.39**</td><td>3.95</td><td>4.30</td><td>**4.56**</td><td>**4.77**</td><td>4.94</td></tr></table>	B1B1 (2)
(b)	All points plotted correctly All points joined together in a smooth curve	B1ft B1ft (2)
(c)	$3x+1=10.6 \Rightarrow x=3.2$ Draws line $x=3.2 \Rightarrow y=4.4$ on graph deduces $\ln 10.6 = 4.4-2 = 2.4$ or 2.3	B1 M1 A1cao (3)
(d)	$(3x+1)^2 = e^{(x+1)} \Rightarrow 2\ln(3x+1) = x+1 \Rightarrow \ln(3x+1)+2 = \frac{x}{2}+\frac{5}{2}$ Draws line $y = \frac{x}{2}+\frac{5}{2} \Rightarrow x = 4.2$ or 4.3, 0.3 or 0.4	M1A1 dM1A1A1 (5) [12]
(a)		
B1	Any 2 values correct to at least 2 dp	
B1	All 3 values correct and all to 2 dp	
(b)		
B1ft	Their values plotted correctly or a smooth graph correct for their table of values drawn	
B1ft	Smooth curve drawn through their points. Do not award this mark if it is clear that a ruler has been used on lhs (can be used at rhs).	
NB	These 2 marks can be awarded for a correct graph if the table values are incorrect or missing.	
(c)		
B1	For $x=3.2$ (Award if correct line is drawn)	
M1	Draws the line $x=3.2$ on their graph and obtains the corresponding y value (horizontal line may be omitted). Without evidence that the graph has been used, give M0	
A1cao	ln10.6 = 2.4, or 2.3 **Must** be 1 dp unless rounding already penalised in (a)	
(d)		
M1	Attempt to rearrange the equation to $\ln(3x+1)+2=...$ with a linear function on RHS.	
A1	Correct rearrangement. Need not be simplified eg $\ln e^{\frac{1}{2}(x+1)}+2$ is a linear function and a correct rearrangement	
dM1	Draw their line on their graph. Depends on the first M mark	
A1	Either value correct	
A1	Second value correct Award A1A0 if both correct but one or both given to more than 1dp (unless rounding already penalised)	


y
6
4
2
0
2
4
6
x