Q1.

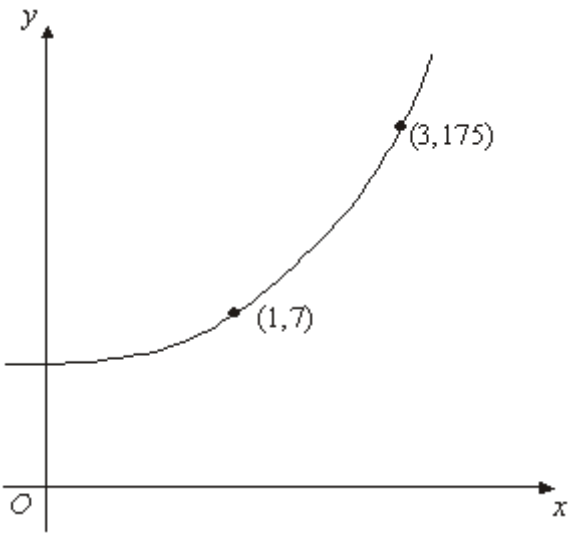

Diagram **NOT** accurately drawn

The sketch shows a curve with equation

$$y = ka^x$$

where k and a are constants, and $a > 0$

The curve passes through the points (1, 7) and (3, 175).

Calculate the value of k and the value of a.

k = ...

a = ...

(Total 3 marks)

M1.

Working	Answer	Mark	Additional Guidance
$7 = ka^1$; $175 = ka^3$ $k = \frac{7}{a}$, $175 = \frac{7a^3}{a}$, $175 = 7a^2$ $a^2 = 25$, so $a = 5$, $k = 1.4$ Or $7^3 = k^3a^3$, $175 = ka^3$ $k^2 = \frac{7}{175}$, $k = 1.4$, $a = 5$	$k = 1.4$ $a = 5$	3	**M1** either $a^2 = 25$ or $7 = ka$ (or $7 = ka^1$) and $175 = ka^3$ **A1** $k = 1.4$ oe **A1** $a = 5$ SC Either $a = 5$ or $k = 1.4$ oe gets **B2**
			Total for Question: 3 marks

E1. Exponential growth is generally found to be a hard topic at GCSE and this question was no different. Many candidates started sensibly and substituted the values of x and y to get the pair of equations $7 = ka^1$ and $175 = ka^3$. However, things then went badly wrong, mainly through poor use of index laws. For example, was evaluated as 1, leading to $k = 7$ and ignoring the second equation, or, the 2 equations were combined to eliminate k giving $a^3 = 175/7$, followed by a cube root. There appeared to be little evidence of candidates checking the value of a and the value of k in both equations.