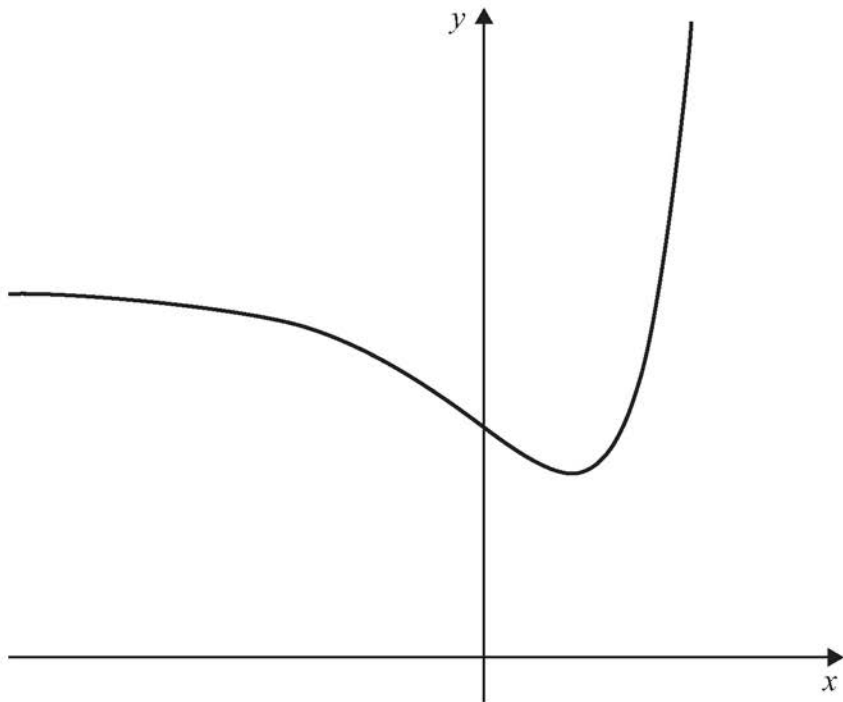


7

A function f has domain \mathbb{R} and range $\{y \in \mathbb{R} : y \geq e\}$

The graph of $y = f(x)$ is shown.



The gradient of the curve at the point (x, y) is given by $\frac{dy}{dx} = (x - 1)e^x$

Find an expression for $f(x)$.

Fully justify your answer.

[8 marks]