The graph of $y = e^{2x-1}$ is obtained by performing two transformations to the function $f(x) = e^x$

- a stretch of scale factor ***a*** parallel to the x axis

- a stretch of scale factor ***b*** parallel to the y axis.

Find the values of ***a*** and ***b***

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Use the properties of indices to re-write the equation of the graph

$m^x \times m^y = m^{x+y}$

$$y = e^{2x-1}$$

$$y = e^{2x} \times e^{-1}$$

$$y = e^{2x} \times \frac{1}{e}$$

This equation can be written in the form

$y = Ae^{bx}$

…which can be obtained by performing two transformations to the function $f(x) = e^x$

- a stretch scale factor $\frac{1}{b}$ parallel to the x axis
- a stretch scale factor $A$ parallel to the y axis

$$y = \frac{1}{e} \times e^{2x}$$

…can be obtained by performing two transformations to the function $f(x) = e^x$

- a stretch scale factor $\frac{1}{2}$ parallel to the x axis
- a stretch scale factor $\frac{1}{e}$ parallel to the y axis

Hence, $\boldsymbol{a = \frac{1}{2}}$

$\boldsymbol{b = \frac{1}{e}}$