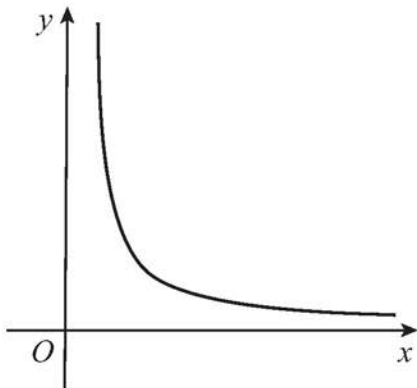**6**   A curve has equation $y = \dfrac{2}{x\sqrt{x}}$

The region enclosed between the curve, the x-axis and the lines $x = 1$ and $x = a$ has area 3 units.

Given that $a > 1$, find the value of a.

Fully justify your answer.

[5 marks]