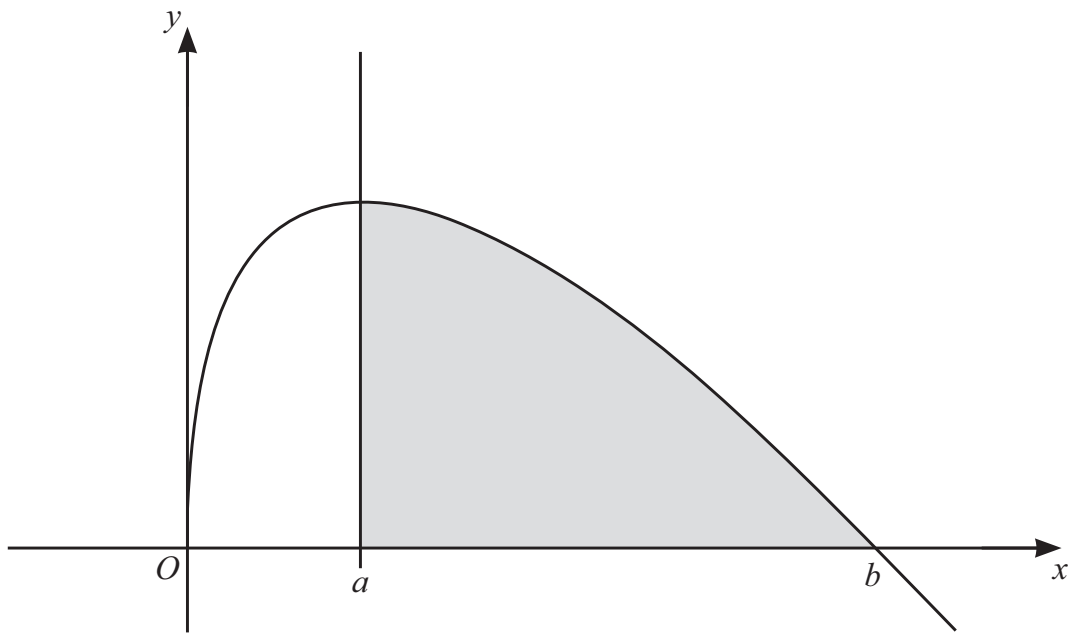
5



The equation of a curve is $y = 4x^{\frac{1}{2}} - x$. The curve has a maximum point when $x = a$ and crosses the x-axis at the point with coordinates $(b, 0)$, where $b > 0$. The shaded region is bounded by the curve, the line $x = a$ and the x-axis (see diagram).

(a) Find the value of a. [3]

(b) Find the exact area of the shaded region. [5]