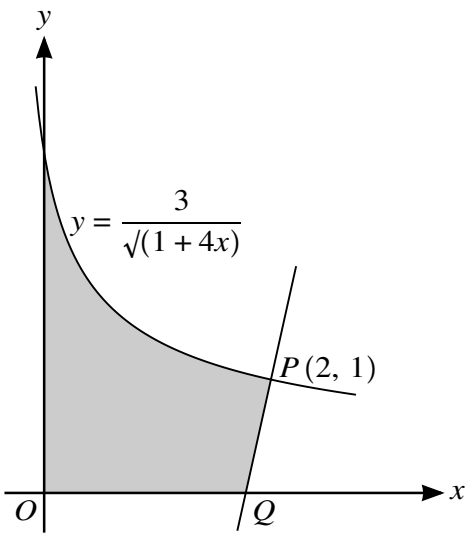
11



The diagram shows part of the curve $y = \frac{3}{\sqrt{(1+4x)}}$ and a point $P\,(2,\ 1)$ lying on the curve. The normal to the curve at P intersects the x-axis at Q.

(i) Show that the x-coordinate of Q is $\frac{16}{9}$. [5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(ii) Find, showing all necessary working, the area of the shaded region. [6]