



The diagram shows part of the curve  $y = \frac{8}{\sqrt{3x+4}}$ . The curve intersects the  $y$ -axis at  $A(0, 4)$ . The normal to the curve at  $A$  intersects the line  $x = 4$  at the point  $B$ .

(i) Find the coordinates of  $B$ . [5]

(ii) Show, with all necessary working, that the areas of the regions marked  $P$  and  $Q$  are equal. [6]