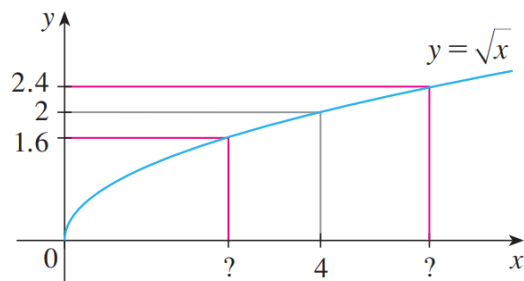


### Exercise 3

Use the given graph of  $f(x) = \sqrt{x}$  to find a number  $\delta$  such that

$$\text{if } |x - 4| < \delta \quad \text{then} \quad |\sqrt{x} - 2| < 0.4$$

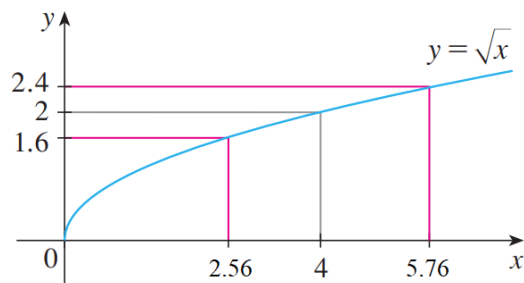


### Solution

Start by finding the values of  $x$  that give  $f(x) = 1.6$  and  $f(x) = 2.4$ .

$$\sqrt{x} = 1.6 \quad \rightarrow \quad x = 1.6^2 = 2.56$$

$$\sqrt{x} = 2.4 \quad \rightarrow \quad x = 2.4^2 = 5.76$$



As long as  $\delta$  is less than 1.44, the distance from 2 on the  $y$ -axis will be less than 0.4.