Exercise 22

Find the range of $y = 2 + \sqrt{9 + x^2}$.

Solution

The smallest value of the function is

$$y = 2 + \sqrt{9 + 0^2} = 2 + 3 = 5,$$

and the highest value of the function is infinity. Therefore, the range is

$$\{y \mid 5 \leq y < \infty\}.$$