Exercise 68

For the following exercises, use the written statements to construct a polynomial function that represents the required information.

A rectangle has a length of 10 inches and a width of 6 inches. If the length is increased by x inches and the width increased by twice that amount, express the area of the rectangle as a function of x.

Solution

The area of a rectangle is

$$A = LW.$$

The new length is $10 + x$, and the new width is $6 + 2x$.

$$\begin{aligned} A(x) &= (10 + x)(6 + 2x) \\ &= 60 + 20x + 6x + 2x^2 \\ &= 2x^2 + 26x + 60. \end{aligned}$$