Exercise 27

For the following exercises, use the graph in Figure 1 showing the profit, y, in thousands of dollars, of a company in a given year, x, where x represents years since 1980.
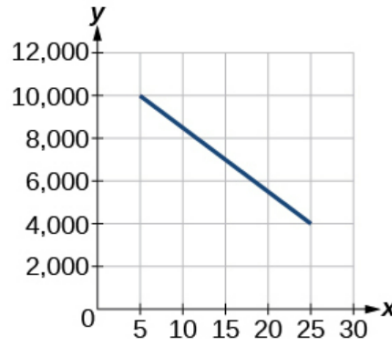

Figure 1

Find the linear function y, where y depends on x, the number of years since 1980.

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Solution

To get the linear function, two points on this graph need to be identified: $(5, 10\,000)$ and $(25, 4000)$. Determine the slope first.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4000 - 10\,000}{25 - 5} = \frac{-6000}{20} = -300$$

Then use the point-slope formula with either of the two points to get the equation of the line.

$$y - 10\,000 = -300(x - 5)$$

$$y - 10\,000 = -300x + 1500$$

$$y = -300x + 11\,500$$