

Exercise 18

For the following exercises, consider this scenario: A town has an initial population of 75,000. It grows at a constant rate of 2,500 per year for 5 years.

What is the output in the year 12 years from the onset of the model?

Solution

Because the town's population grows at a constant rate, a linear function can be used to model it. The slope is 2500, the rate that the town's population increases per year, and the initial population is 75 000.

$$P(t) = 2500t + 75\,000$$

The population 12 years from the onset of the model is

$$P(12) = 2500(12) + 75\,000 = 105\,000.$$