Exercise 47

The graph in Figure 19 illustrates the decay of a radioactive substance over t days.

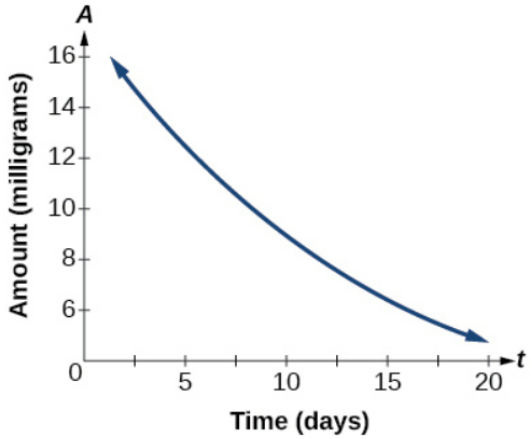

Figure 19

Use the graph to estimate the average decay rate from $t = 5$ to $t = 15$.

Solution

Determine the values of A corresponding to these values of t.

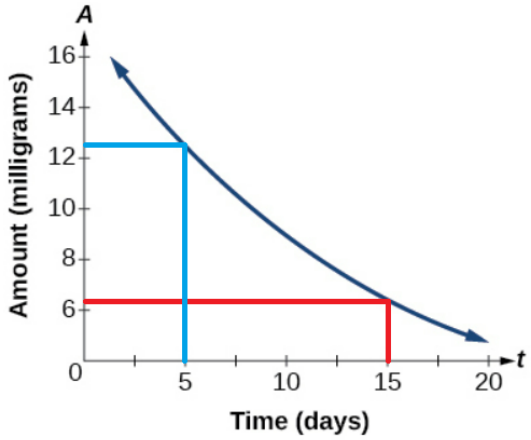

Figure 19

Now calculate the average decay rate from $t = 5$ to $t = 15$.

$$\frac{A(15) - A(5)}{15 - 5} \frac{\text{mg}}{\text{day}} \approx \frac{6.25 - 12.5}{10} \frac{\text{mg}}{\text{day}}$$

$$\approx -0.625 \frac{\text{mg}}{\text{day}}$$