

Exercise 66

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

An oil slick is expanding as a circle. The radius of the circle is increasing at the rate of 20 meters per day. Express the area of the circle as a function of d , the number of days elapsed.

Solution

The area of a circle is

$$A = \pi r^2.$$

The radius is $r = 20d$. Therefore, the area of the oil slick after d days is

$$\begin{aligned} A(d) &= \pi(20d)^2 \\ &= \pi(400d^2) \\ &= 400\pi d^2. \end{aligned}$$