

Lesson 6.

Word Problems

1. An advertising agency begins a campaign to promote a new product and determines that t days later, the number of people $N(t)$ who have heard about the product is changing at a rate given by

$$N'(t) = 3t^2 - \frac{0.4t}{t^2 + 3} \text{ people per day}$$

How many people learn about the product during the second week?

2. The city manager of West Lafayette estimates that water is being consumed by his community at the rate of

$C'(t) = 5 + 0.5e^{0.05t}$ billion gallons per year, where $C(t)$ is the water consumption t years after the year 2000. How much water will be consumed by the community during the decade 2000-2010?