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## **Curated Practice Problem Set**

DATE

## **Unit 5 Lesson 6 Cumulative Practice Problems**

- 1. The two graphs show models characterized by exponential decay representing the area covered by two different algae blooms, in square yards, *w* weeks after different chemicals were applied.
  - a. Which algae bloom covered a larger area when the chemicals were applied? Explain how you know.
  - b. Which algae population is decreasing more rapidly? Explain how you know.
- 2. A medicine is applied to a burn on a patient's arm. The area of the burn in square centimeters decreases exponentially and is shown in the graph.
  - a. What fraction of the burn area remains each week?
  - b. Write an equation representing the area of the burn, *a*, after *t* weeks.
  - c. What is the area of the burn after 7 weeks? Round to three decimal places.







PERIOD

Illustrative Mathematics



NAME	DATE	PERIOD

- 3. a. The area of a sheet of paper is 100 square inches. Write an equation that gives the area, *A*, of the sheet of paper, in square inches, after being folded in half *n* times.
  - b. The area of another sheet of paper is 200 square inches. Write an equation that gives the area, *B*, of this sheet of paper, in square inches, after being folded into thirds *n* times.
  - c. Are the areas of the two sheets of paper ever the same after each being folded *n* times? Explain how you know.
- 4. The graphs show the amounts of medicine in two patients after receiving injections. The circles show the medicine in patient A and the triangles show that in patient B.

One equation that gives the amount of medicine in milligrams, *m*, in patient A, *h* hours after an injection, is  $m = 300 \left(\frac{1}{2}\right)^{h}$ .

What could be an equation for the amount of medicine in patient B?



A. 
$$m = 500 \left(\frac{3}{10}\right)^h$$
  
B.  $m = 500 \left(\frac{7}{10}\right)^h$   
C.  $m = 200 \left(\frac{3}{10}\right)^h$   
D.  $m = 200 \left(\frac{7}{10}\right)^h$ 



## NAME

DATE

PERIOD

5. Select **all** expressions that are equivalent to  $3^8$ .

A.  $3^2 \cdot 3^4$ B.  $3^2 \cdot 3^6$ C.  $\frac{3^{16}}{3^2}$ D.  $\frac{3^{12}}{3^4}$ E.  $(3^4)^2$ F.  $(3^1)^7$ 

(From Unit 5, Lesson 3.)

6. *Technology required.* Use a graphing calculator to determine the equation of the line of best fit. Round numbers to 2 decimal places.

x	10	12	15	16	18	20	24
у	27	22	21	19	15	14	10

(From Unit 3, Lesson 5.)