Name

LESSON MASTER 9-2 B

Questions on SPUR Objectives

Vocabulary

1. What is true of the growth factor in situations of *exponential decay*?

   _____

2. What is *depreciation*?

   _____

   _____

Properties Objective D: Recognize properties of exponential functions.

In 3 and 4, an equation for a function is given. a. Give the domain of the function. b. Give the range of the function.

3. $f(x) = 0.9^x$

   a. _____

   b. _____

4. $f(x) = 1.5(.08)^x$

   a. _____

   b. _____

5. Give the equations of all asymptotes of the graph defined by $f(x) = 3(.44)^x$. _____

6. *Multiple choice.* The reflection image over the y-axis of an exponential-decay curve is which of the following? _____

   (a) same exponential-decay curve (b) different exponential-decay curve

   (c) exponential-growth curve (d) none of these

7. Consider the exponential function with equation $y = ab^x$. Give an equation for its x-intercept and y-intercept.

   _____ _____

Uses Objective F: Apply exponential-decay models.

8. Suppose a new car bought in 1988 for \$14,675 depreciates 15% each year.

   a. Find an equation that gives the car's value x years after 1988. _____

   b. Predict the car's value in 1995. _____

9. Consider the equation $L = .87^x$, which gives the percent of light that will pass through x thicknesses of a certain type of tinted glass. (L = lumens per square meter)

a. What percent of light will pass through a single thickness? _____

b. What percent of light will pass through four thicknesses? _____

c. What percent of light will pass through a half-thickness of the glass? _____

d. Suppose a source emits light with an intensity of 1400 lumens per square meter. What is the intensity of the light passing through six thicknesses of the glass? _____

10. Radium-226 (^{226}Ra) has a half-life of 1620 years.

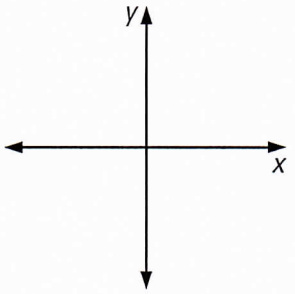
a. Determine an equation for the percent of ^{226}Ra remaining in the original sample after x half-life periods. _____

b. If you start with 4 g of ^{226}Ra, how much will remain after 5 half-life periods? _____

c. How many years equal 5 half-life periods of ^{226}Ra? _____

Representations Objective I: Graph exponential functions.

11. At the right, sketch a graph that could represent exponential decay.



12. Locate at least five points on the graph of $y = .6^x$ on the grid at the right.