Name _____

9-2A Lesson Master

PROPERTIES   Objective D

1. Determine whether the equation models exponential *growth* or *decay*.

   a. $y = (0.98)^x$ _____   b. $y = (1.92)^x$ _____   c. $y = 12(0.2)^x$ _____

2. Give the domain and range of the function $y = a \cdot b^x$.

   a. if $b > 1$. _____   b. if $0 < b < 1$. _____

USES Objective G

3. Morgan and Chris buy a car for \$18,000. Its value decreases
   12% per year.

   a. Write a formula for the value A of the car, t years after they buy it.   _____

   b. Find the value of the car after five years.   _____

4. Strontium 90 (^{90}Sr) is used for a variety of medical and other
   applications. ^{90}Sr has a half-life of 29 years. Suppose you have
   an initial sample of 100 g of ^{90}Sr.

   a. How much will be left after five half-lives?   _____

   b. How much will be left after 100 years?   _____

   c. **Fill in the Blanks** Your sample will decay to only 1 g

      after _____ half-lives, or about _____ years.

REPRESENTATIONS   Objective J

In 5 and 6, consider the functions $f(x) = 2^x$ and $g(x) = \left(\frac{1}{2}\right)^x$.

5. Fill in the table of values below.

6. Carefully graph both functions
   on the same set of axes below.

x	$f(x) = 2^x$	$g(x) = \left(\frac{1}{2}\right)^x$
−3		
−2		
−1		
0		
1		
2		
3		