Name

7-4A Lesson Master

Questions on SPUR Objectives
See pages 452–455 for objectives.

USES Objectives E and F

In 1–5, *multiple choice.* Tell if the situation described is:

A exponential growth **B** exponential decay
C constant increase **D** constant decrease

1. Every year, there are 5% fewer patients with the disease. _____
2. With better techniques, farmers are able to increase their output 3% each year. _____
3. Each year, there are 30 fewer students in the school. _____
4. In a single-elimination tournament, half of the teams are eliminated in each round of play. _____
5. Every time Joan took the test her score increased points. _____
6. Amalgamated Industries receives hundreds of applications for each job opening. Their selection process is to review applications and discard 50% of them. This is repeated until only one applicant is left. Let n = the number of times that half the applications are discarded.
   a. Write an expression of the form $b \cdot g^n$ to describe the number of people left after the applications have been reviewed n times. _____
   b. If 512 people apply for a job, how many are left when $n = 4$? _____

REPRESENTATIONS Objective H

7. It seems like there are coffee stores on every corner in some neighborhoods. At the right is a table that shows the total number of coffee stores each year since 1987.
   a. Create a scatterplot on your calculator. Does the data appear to be linear or exponential? _____
   b. Using regression, find an equation to fit the data. Let x = the number of years since 1987. _____
   c. Use your equation from Part b to predict how many stores there will be in 2013. _____
   d. In what year will there be more than 20,000 stores? _____

Year	Number of Stores
1987	17
1988	33
1989	55
1990	84
1991	116
1992	165
1993	272
1994	425
1995	676
1996	1,015
1997	1,412
1998	1,886
1999	2,135
2000	3,501
2001	4,709
2002	5,886
2003	7,225
2004	8,337