Name

2-6 Lesson Master

Questions on SPUR Objectives
See Student Edition pages 142–145 for objectives.

SKILLS Objective A

In 1 and 2, rewrite the equation in exponential form. Then, solve for the variable.

1. $\log_b 125 = 3$ _____

2. $\log_{42} y = 2$ _____

In 3 and 4, rewrite the equation in using properties of logarithms and solve.

3. $\log_2 16 - \log_2(k + 3) = 3$ _____

4. $3 \log 1000 + p \log 100 = 1$ _____

PROPERTIES Objective E

5. Describe the end behavior of the function $t : x \rightarrow \log_7 x$. _____

6. Analyze the function s with equation $s(x) = \log_b x$, with $0 < b < 1$. _____

USES Objective F

7. Suppose you place \$1200 into a savings account that compounds interest continuously at a rate of 2.875%.

   a. Write a formula for the amount A in the account after t years, assuming there are no additional deposits or withdrawals. Then, rewrite the formula as a logarithmic equation.

   _____

   b. How long will it take for the balance in your account to reach \$1500? _____

8. When the intensity of a sound is measured is watts per square meter, the intensity of sounds that humans can hear without pain can range from $10^{-12}\frac{\text{W}}{\text{m}^2}$ to $10^{1}\frac{\text{W}}{\text{m}^2}$. To make this large range of values more manageable, the sound intensity values are often converted to relative sound intensity values using the formula $D = 10 \log \left(\frac{N}{10^{-12}}\right)$, where N is the absolute sound intensity in $\frac{\text{W}}{\text{m}^2}$ and D is the relative intensity in decibels.

   a. What is the relative intensity of a normal conversation, which has an absolute intensity of $10^{-6}\frac{\text{W}}{\text{m}^2}$? _____

   b. What is the absolute sound intensity of amplified rock music, which has a relative intensity of 120 decibels? _____