

Name _____

9-10A Lesson Master

Questions on SPUR Objectives
See Student Edition pages 656–659 for objectives.

SKILLS Objective A

In 1 and 2, approximate to the nearest thousandth and check your answer.

1. $\log_{12} 983 =$ _____

2. $\log_{0.92} 0.5 =$ _____

SKILLS Objective B

3. Solve $7^x = 50$ by taking natural logs of both sides. _____

In 4–7, solve for the variable. Round to the nearest thousandth. Check your work.

4. $3^n = 1.07$ _____

5. $0.75^x = 1.98$ _____

6. $1200 = 300(1.045)^t$ _____

7. $1.5 = e^{0.08t}$ _____

PROPERTIES Objective F

8. **Multiple Choice** Which of the following is *not* equal to $\log_5 12$? _____

A $\log \frac{12}{5}$

B $\frac{\log 12}{\log 5}$

C $\frac{\ln 12}{\ln 5}$

D $\frac{2 \log 2 + \log 3}{\log 5}$

9. **True or False** $\log m = \frac{\ln m}{\ln 10}$. Explain.

USES Objective G

10. A math teacher has \$60,000 saved for retirement. If she earns an average of 9% interest annually, and makes no additional deposits or withdrawals, how long will she have to keep working to retire a millionaire?

a. Write an equation that could be used to answer this question. _____

b. Solve your equation. Round to the nearest year. _____

11. The population of the United States reached 300 million in 2006. Suppose it grows at an annual rate of 0.86%. When will the population reach 400 million?

a. Write an equation that could be used to answer this question. _____

b. Solve your equation. Round to the nearest year. _____

12. An investment pays a return of 7.5%, compounded continuously. How long will it take to triple in value?

a. Write an equation that could be used to answer this question. _____

b. Solve your equation. Round to the nearest month. _____