Name

9-7A Lesson Master

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

VOCABULARY

In 1 and 2, write the exponential equation as a logarithmic equation, or vice-versa.

1. a. $6^{-3} = \frac{1}{216}$ _____ b. $8^{\frac{2}{3}} = 4$ _____ c. $b^n = p$ _____

2. a. $\log_3 81 = 4$ _____ b. $\log_2 10 \approx 3.322$ _____ c. $\log_b c = d$ _____

SKILLS Objective A

In 3–5, evaluate in your head. You may check with a calculator.

3. $\log_5 25 =$ _____ 4. $\log_2 \frac{1}{16} =$ _____ 5. $\log_7 \sqrt{7} =$ _____

6. Evaluate to the nearest thousandth.

a. $\log_2 41.3 \approx$ _____ b. $\log_{0.6} 0.9 \approx$ _____ c. $\log_{12} 8.29 \approx$ _____

SKILLS Objective C

In 7–10, write the equivalent exponential equation; use it to solve the logarithmic equation. Do as much work as you can in your head.

7. $\log_5 x = 3$ _____ 8. $\log_4 x = \frac{5}{2}$ _____

9. $\log_b 64 = 6$ _____ 10. $\log_x \left(\frac{1}{8}\right) = -\frac{3}{4}$ _____

11. Solve $3 \log_5 x + 2 = 8$ for x. _____

PROPERTIES Objective E

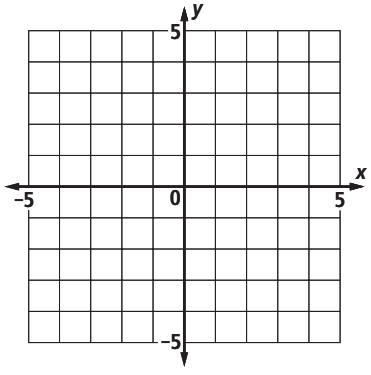
12. Give the restrictions on b and n in the expression $\log_b n$. _____

13. **Fill in the Blank** If $f(x) = \log_{42} x$ when $x > 0$, then $f^{-1}(x) =$ _____.

REPRESENTATIONS Objective K

In 14 and 15, consider the graphs of $f(x) = 3^x$ and $g(x) = \log_3 x$.

14. Graph each function at the right. Label three points on the graph of f with their coordinates, and the corresponding points on the graph of g.



15. Name the asymptotes of each function.