

LOGS PART II: REVIEW

1. Which of the following equations could be used when solving $64^{x-1} = 8\sqrt{8}$?

a. $x - 1 = 8$

c. $(x - 1)\log 64 = \log 8$

b. $2x - 2 = \frac{3}{2}$

d. $x - 2 = 8\sqrt{8}$

2. Express $27^{\frac{1}{3}} = 3$ in logarithmic form.

3. Evaluate $\log_m m^{2x}$.

4. Evaluate $\log_{\frac{3}{2}} \left(\frac{27}{8} \right)$.

5. State the law of logarithms used to re-write $\log_5 32 - \log_5 8$ as $\log_5 4$.

a. Difference law of logarithms

c. Power law of logarithms

b. Product law of logarithms

d. Quotient law of logarithms

6. Write $\log_3 a - (\log_3 b + \log_3 c)$ as a single logarithm.

7. Which of the following statements is correct?

a. $\log_3 8 = 3 \log_3 2$

c. $\log_2 3 + \log_3 2 = \log_6 6$

b. $\log_2 (5 \times 2) = \log_2 5 \times \log_2 2$

d. $\frac{\log_b x}{\log_b y} = \log_b \frac{x}{y}$

8. The half-life of a certain substance is 5.9 days. How many days will it take for 30 g of the substance to decay to 12 g?

9. A certain radioactive substance decays exponentially. The percent, P , of the substance left after t years is given by the function $P(t) = 100(1.32)^{-t}$. Determine the instantaneous rate of decay at the instant the half life of the substance is reached.

10. Given the exponential function $y = 3^x$;
a) Write the corresponding logarithmic function.

11. Describe the strategy and log laws that should be used to solve the following equation:

$$\log x = 4 \log 2.$$

12. Solve $\log_5(5x+2) = 1$.

*13. Solve $\log_2 [2(\log_4 x)] = 3$

*14. Solve $\log(x+2) + \log(x-1) = \log(8-2x)$