

## Review Rewriting, Evaluating &amp; Properties of Logs Quiz Review

**Rewrite each equation in exponential form.**

1)  $\log_{15} \frac{1}{225} = -2$

$$15^{-2} = \frac{1}{225}$$

2)  $\log_5 x = y$

$$5^y = x$$

**Rewrite each equation in logarithmic form.**

3)  $361^{\frac{1}{2}} = 19$

$$\log_{361} 19 = \frac{1}{2}$$

4)  $y^8 = x$

$$\log_y x = 8$$

**Evaluate each expression.**

5)  $\log_4 \frac{1}{64}$

$$-3$$

6)  $\log_{125} 5 \frac{1}{3}$

7)  $\log_5 125$

$$3$$

8)  $\log_4 \frac{1}{16}$

$$-2$$

9)  $\log_4 4$

$$1$$

10)  $\log_4 1$

$$0$$

**Expand each logarithm.**

11)  $\log \frac{x}{y}$

$$\log x - \log y$$

12)  $\log (a \cdot b)$

$$\log a + \log b$$

13)  $\log_7 (u \cdot v \cdot w^5)$

$$\log_7 u + \log_7 v + 5 \log_7 w$$

14)  $\log_8 (w\sqrt{v}) \log_8 w + \frac{\log_8 v}{2}$

15)  $\log_4 (z \cdot xy^3)^4$

$$4 \log_4 z + 4 \log_4 x + 12 \log_4 y$$

16)  $\log_3 (c \cdot a^3 \cdot b)^3$

$$3 \log_3 c + 9 \log_3 a + 3 \log_3 b$$

Condense each expression to a single logarithm.

17)  $\log x - \log y$

$$\log \frac{x}{y}$$

18)  $5 \log u$

$$\log u^5$$

19)  $6 \log_2 x + 18 \log_2 y$

$$\log_2 (y^{18} x^6)$$

20)  $2 \log_6 z + \frac{1}{2} \cdot \log_6 x$

$$\log_6 (z^2 \sqrt{x})$$

21)  $\log_5 7 + 5 \log_5 11 - 3 \log_5 8$

$$\log_5 \frac{7 \cdot 11^5}{8^3}$$

22)  $2 \log_3 x - 2 \log_3 z - 12 \log_3 y \log_3 \frac{x^2}{z^2 y^{12}}$