

MAT 171 Homework Section 4.2: Logarithmic Functions

Write each equation in its equivalent exponential form

1) $\log_2 16 = 4$

2) $\log_3 x = 2$

3) $\log_b 32 = 5$

4) $\log_6 216 = y$

Write each equation in its equivalent logarithmic form.

5) $2^3 = 8$

6) $2^{-4} = \frac{1}{16}$

7) $\sqrt[3]{8} = 2$

Evaluate each expression without using a calculator.

8) $\log_4 16$

9) $\log_2 64$

10) $\log_5 \frac{1}{5}$

11) $\log_2 \frac{1}{8}$

12) $\log_7 \sqrt[2]{7}$

13) $\log_5 5$

14) $\log_7 1$

15) $\log_5 5^7$

16) $8^{\log_8 19}$

Write each equation in its equivalent exponential form. Then solve for x .

17) $\log_3(x - 1) = 2$

18) $\log_4 x = -3$

19) $\log_6 4x = \frac{2}{3}$

- 20) The percentage of adult height attained by a girl who is x years old can be modeled by $f(x) = 62 + 35\log(x - 4)$, where x represents the girl's age (from 5 to 15) and $f(x)$ represents the percentage of her adult height. Approximately what percentage of her adult height has a girl attained at age thirteen? (Round answer to the nearest tenth of a percent.)