

Logarithms

1. Find

a. $\log_{10}(0.01)$

b. $\log_{10} 1000$

2. Given $\log_{10} 2 = 0.3010$, $\log_{10} 3 = 0.4771$, solve $\log_{10} \sqrt[10]{6}$

3. How many 2digits are there for 2^{56}

4. Solve $6 \log \frac{2}{3} - 4 \log \frac{10}{9} + 2 \log \frac{25}{6}$

5. If $a^2 + b^2 = 6ab$, prove $\log \frac{a-b}{2} = \frac{1}{2}(\log a + \log b)$

6. Prove $\log \frac{3}{10} - 2 \log \frac{3}{5} + \log \frac{6}{5} = 0$

7. If $\log_{10} 2 + \log_{10} P - \log_{10} 7 = 1$, Find P

8. Simplify $\log_5 2 \frac{5}{6} + \log_5 \frac{4}{15} + \log_5 1 \frac{11}{34}$

9. Given $\log_2 x^2 - \log_4 x = 6$. Solve x

10. Solve $\log_{10} \left(\frac{1}{2} - \frac{1}{9}\right) + 2 \log_{10} 3 + \log_{10} \frac{2}{7}$

11. Given $\log_{10} 2 = 0.301$, $\log_{10} 3 = 0.477$. Find $\log_{10} \sqrt{24}$

12. Calculate $\log_{10} 40 - 2 \log_{10} 2 + \log_3 1$

13. Solve $3 \log 2 - \log 6 = \log x - \log(x - 1)$

14. Simplify $\log_5 125 - \log_5 75 + \log_5 15$

15. Given $\log_2 3 = 1.585$, $\log_2 5 = 2.322$. Find

a. $\log_2 60$

b. $\log_2 3.75$

16. Solve $\log x + \log(x + 3) - \log(x - 1) = 1$

17. Given $a = \log 2$, $b = \log 3$, express answer in terms of a and b for $\log \frac{3}{2} + \log \frac{5}{4} + \log \frac{9}{8}$

18. Given $\log_a 2 = x$, $\log_a 3 = y$, express answer in terms of x and y for $\log_a \left(\frac{8a}{9}\right)$

19. Calculate $\log_2(4^5 \cdot 2^7)$

20. Simplify $\frac{\log 9 + \log 25}{\log 15}$

21. Given $\log_{10} 2 = 0.301$, $\log_{10} 3 = 0.477$. Find

a. $\log 12 - \log 1.5$

b. $\log 30$

22. Calculate $\log 1 + (\log_2 8)(\log_3 243)$

23. Solve $(\log 5)^2 + (\log 2)(\log 50)$

24. Calculate $\log_{\sqrt{2}} 8 + \log_4 \sqrt{2}$

25. Solve $\frac{3}{4} \log_3 81 - \log_3 36^{1.5} + \frac{1}{2} \log_3 64$