

7-6 Skills Practice

Common Logarithms

Use a calculator to evaluate each expression to the nearest ten-thousandth.

1. $\log 6$

2. $\log 15$

3. $\log 1.1$

4. $\log 0.3$

Solve each equation or inequality. Round to the nearest ten-thousandth if necessary.

5. $3^x > 243$

6. $16^v \leq \frac{1}{4}$

7. $8^p = 50$

8. $7^y = 15$

9. $5^{3b} = 106$

10. $4^{5k} = 37$

11. $12^{7p} = 120$

12. $9^{2m} = 27$

13. $3^{r-5} = 4.1$

14. $8^{y+4} > 15$

15. $7.6^{d+3} = 57.2$

16. $0.5^{t-8} = 16.3$

17. $42^{x^2} = 84$

18. $5^{x^2+1} = 10$

Express each logarithm in terms of common logarithms. Then approximate its value to the nearest ten-thousandth.

19. $\log_3 7$

20. $\log_5 66$

21. $\log_2 35$

22. $\log_6 10$

23. Use the formula $\text{pH} = -\log [H^+]$ to find the pH of each substance given its concentration of hydrogen ions. Round to the nearest tenth.

a. gastric juices: $[H^+] = 1.0 \times 10^{-1}$ mole per liter

b. tomato juice: $[H^+] = 7.94 \times 10^{-5}$ mole per liter

c. blood: $[H^+] = 3.98 \times 10^{-8}$ mole per liter

d. toothpaste: $[H^+] = 1.26 \times 10^{-10}$ mole per liter