

Section 5.4: Solving Equations with Exponents and Logs

Exercises

Solve. When appropriate, give your answer as a decimal approximation rounded to three places.

1. $5^x = 0.1$

2. $3^{2x} = 24$

3. $10^q = 15$

4. $2^{1-x} = 0.00004$

5. $6^{2x+1} = 36$

6. $7^{5-m} = 10$

7. $3^{x-6} = 1$

8. $25 = 0.5^y$

9. $1.02^x = 3$

10. $e^{-5t} = 0.25$

11. $e^{7t} = 3$

12. $1.01^{10x} = 5$

13. $5(1.015)^{8x} = 10$

14. $10e^{-5t} = 2$

15. $2(1.02)^{3t} = 8$

16. $1000e^{-10t} = 100$

Solve for x . Give exact answers.

17. $\log(1-x) = 1$

18. $\log(2x+1) = 0$

$$19. \log_2(x-5) = 3$$

$$20. \ln x = 2$$

$$21. \log_x(3) = -1$$

$$22. \log_x(8) = 3$$

$$23. \log_3(x-2) = -1$$

$$24. \log_5(x^3 - 2) = 2$$

$$25. \log_x(8) = 1/2$$

$$26. \log_{x+2}(64) = 3$$

$$27. \log(x+5) = \log(7)$$

$$28. \ln(1-x) = \ln(9+x)$$

$$29. \log_2(x^3 - 1) = \log_2(26)$$

$$30. \log_{1.02}(x^2 + 5) = \log_{1.02}(x^2 + x)$$

$$31. \ln\left(\frac{2}{3}x + 1\right) = \ln\left(\frac{3}{2}x - 4\right)$$

$$32. \log(0.01x) = \log(5)$$