

Precalculus Unit 4: 4.4 Homework
Solving Exponential and Logarithmic Equations

Solve each of the following exponential equations. SHOW WORK!!

1. $4^x = 256$

2. $7^x = \frac{1}{49}$

3. $\left(\frac{1}{2}\right)^x = 32$

4. $8^{3x} = 360$

5. $2e^{5x} = 18$

6. $-14 + 3e^x = 11$

7. $100e^{0.005x} = 125,000$

8. $\frac{40}{1-5e^{-0.01x}} = 200$

9. $e^{2x} - 4e^x - 5 = 0$

Solve each of the following logarithmic equations. SHOW WORK!!

10. $\log x = -1$

11. $\log_x 625 = 4$

12. $\ln(2x - 1) = 5$

13. $\log_5(3x + 2) = \log_5(6 - x)$

14. $\log(z - 3) = 2$

15. $\log_3 x + \log_3(x - 8) = 2$

16. $\ln \sqrt{x + 2} = 1$

17. $\ln(x + 5) = \ln(x - 1) - \ln(x + 1)$

18. The demand x for a hand-held electronic organizer is given by $p = 5000 \left(1 - \frac{4}{4 + e^{-0.002x}} \right)$ where p is the price in dollars. Find the demand, x , when the price is \$600.