

Section 4.5: Exponential and Logarithmic Equations

Video 1

1) Solve. Round to the nearest thousandth.

$$5^x = 20$$

2) Solve. Round to the nearest thousandth.

$$3^{3x-2} = 7^{x+1}$$

Video 2

3) Solve. Round to the nearest thousandth.

$$e^{|x-2|} = 10$$

4) Solve. Round to the nearest thousandth.

$$e^{3x} \cdot e^{x-2} = 4e^3$$

5) Solve. Round to the nearest thousandth.

$$e^{2x} - 7e^x - 18 = 0$$

Video 3

6) Solve.

a) $4\log x = 10$

b) $\log_4(x^2 - 9) = 2$

7) Solve.

$$\ln x + \ln(x + 6) = \ln 16$$

Video 4

8) Solve.

$$\log_3[(4x+1)(x+1)] = 3$$

9) Solve.

$$\log_2[(2x+3)(x+4)] = 3$$

Video 5

10) Solve.

$$\ln e^{\ln x} - \ln(x-2) = \ln 7$$

Video 6

11) The percentage of U.S. full-time college students who receive some financial aid in a particular year can be described by the function $f(x) = 58.8 + 6.7 \ln x$, where x represents the number of years after 1991.

a) Use this function to predict the percentage of all students that will receive financial aid in 2025.

b) Use this function to predict when 85% of all students will receive some sort of financial aid.