

Section 5.4 Exponential and Logarithmic Equations

Objective: In this lesson you learned how to solve exponential and logarithmic equations.

Course Number

Instructor

Date

I. Introduction (Page 409)

State the One-to-One Property for exponential equations.

What you should learn

How to solve simple exponential and logarithmic equations

State the One-to-One Property for logarithmic equations.

State the Inverse Properties for exponential equations and for logarithmic equations.

Describe how the One-to-One Properties and the Inverse Properties can be used to solve exponential and logarithmic equations.

Example 1: (a) Solve $\log_8 x = \frac{1}{3}$ for x .

(b) Solve $5^x = 0.04$ for x .

II. Solving Exponential Equations (Pages 410–411)

Describe how to solve the exponential equation $10^x = 90$.

What you should learn

How to solve more complicated exponential equations

Example 2: Solve $e^{x-2} - 7 = 59$ for x . Round to three decimal places.

III. Solving Logarithmic Equations (Pages 412–413)

Describe how to solve the logarithmic equation

$$\log_6(4x - 7) = \log_6(8 - x).$$

What you should learn

How to solve more complicated logarithmic equations

Example 3: Solve $4 \ln 5x = 28$ for x . Round to three decimal places.

IV. Applications of Exponential and Logarithmic Equations (Pages 414–415)

Example 4: Use the formula for continuous compounding, $A = Pe^{rt}$, to find how long it will take \$1500 to triple in value if it is invested at 12% interest, compounded continuously.

What you should learn

How to use exponential and logarithmic equations to model and solve real-life applications

Homework Assignment

Page(s)

Exercises