

Section 3.4 Solving Exponential and Logarithmic Equations

Course Number

Instructor

Date

Objective: In this lesson you learned how to solve exponential and logarithmic equations.**I. Introduction** (Page 214)

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

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

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

Describe some strategies for using the One-to-One Properties and the Inverse Properties to solve exponential and logarithmic equations.

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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 215–216)Describe how to solve the exponential equation $10^x = 90$ algebraically.***What you should learn***

How to solve simple exponential and logarithmic equations

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 217–219)

Describe how to solve the logarithmic equation $\log_6(4x - 7) = \log_6(8 - x)$ algebraically.

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.

Describe a method that can be used to approximate the solutions of an exponential or logarithmic equation using a graphing utility.

IV. Applications of Solving Exponential and Logarithmic Equations (Page 220)

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 problems

Homework Assignment

Page(s)

Exercises