Course Number

Instructor

Date

Section 1.2 Equations and Solutions of Equations

Objective: In this lesson you learned how to identify and solve linear equations in one variable.

Important Vocabulary	Define each term or concept.
Equation in one variable	
Solution of equation in one variable	
Identity equation	
Conditional equation	
Equivalent equations	
Extraneous solution	

I. Equations and Solutions of Equations (Page 88)

What you should learn
How to identify different types of equations

To **solve** an equation in x means to . . .

The values of x for which the equation is true are called its

_____.

Example 1: Identify which of the following equations are equations in one variable.

(a) $7 + 6x = 5x - 4$ (b) $9x + 5y = -3$

(c) $I = prt$ (d) $8 = 3x^2 + 4x + 5$

II. Linear Equations in One Variable (Pages 88–90)

What you should learn
How to solve linear equations in one variable

A **linear equation in one variable** x is an equation that can be written in the standard form _____ , where a and b are real numbers with $a \neq$ _____.

A linear equation has _____ solution(s).

An equation can be transformed into an equivalent equation by one or more of the following steps:

(1)

(2)

(3)

(4)

If a contradictory statement such as $9 = 0$ is obtained while solving an equation, then the equation has _____.

Example 2: Solve $5(x + 3) = 35$.

III. Equations Involving Fractional Expressions (Pages 91–92)

What you should learn
How to solve equations involving fractional expressions

To solve an equation involving fractional expressions, . . .

When is it possible to introduce an extraneous solution?

An equation with a single fraction on each side can be cleared of denominators by _____, which is equivalent to multiplying by the LCD and then dividing out.

Example 3: Solve: (a) $\frac{5x}{7} = \frac{9}{14}$ (b) $\frac{1}{x+1} + \frac{5x}{x^2-1} = \frac{4}{x-1}$

IV. Applications of Linear Equations (Pages 92–93)

What you should learn
How to use linear equations to model and solve real-life problems

Describe a real-life situation which can be represented by a linear equation.

Example 4: The budget of a public library (in thousands of dollars) in a small town can be approximated by the linear model $y = 5.4x + 13.9$, where $x = 0$ represents 2000. Assuming that this pattern continues, find the year when the library's budget reaches $50,000.

Homework Assignment
Page(s)

Exercises