

Chapter 1: Equations and Inequalities

Section 1.1: Linear Equations in One Variable

Key Topics: equations, domain, equivalent equations, solving, types of linear equations

An _____ is a statement that two mathematical expressions are equal.

An _____ is a statement that two expressions, with at least one containing the variable, are equal. For example, $2x - 3 = 7$ is an equation in the variable x . The expressions $2x - 3$ and 7 are the _____ of the equation. The _____ of the variable in an equation is the _____ for which both sides of the equation _____.

Procedures That Result in Equivalent Equations		
Procedures	Given Equation	Equivalent Equation
_____ on either side by eliminating parentheses, combining like terms, etc.	$(2x - 1) - (x + 1) = 4$	$2x - 1 - x - 1 = 4$ or $x - 2 = 4$
_____ (or _____) the _____ expression (with the same domain) on _____ sides of the equation.	$x - 2 = 4$	$x - 2 + 2 = 4 + 2$ or $x = 6$
_____ (or _____) _____ sides of the equation by the _____ number.	$2x = 8$	$\frac{1}{2} \cdot 2x = \frac{1}{2} \cdot 8$ or $x = 4$
_____ the two sides of the equation.	$-3 = x$	$x = -3$

Linear Equations

A _____ **linear equation in one variable**, such as x , is an equation that can be written in the **standard form**

$$ax + b = c,$$

where a and b are real numbers with _____.

Identifying Types of Linear Equations

1. An equation that is satisfied by _____ of the variable is an _____.
2. An equation that is ___ an identity but is satisfied by _____ number in the domain of the variable is a _____ equation.
3. An equation that is ___ satisfied by ___ value of the variable is an _____ equation.

Solve the Practice Problems in this section, showing all work. Identify the type of linear equation, when applicable.