

Solving Simple Linear Equations

Objective 1: Solving Linear Equations Using Properties of Equality

The Addition and Multiplication Properties of Equality

If a, b and c are real numbers, then

$$a + c = b + c \text{ is equivalent to } a = b$$

$$ac = bc \text{ is equivalent to } a = b$$

Example: Solve for x .

$$x - 7 = 3$$

Example: Solve for x .

$$5 + x = 1$$

Example: Solve for x .

$$\frac{x}{8} = 3$$

Example: Solve for x .

$$5x = -20$$

Pause the video and try these problems on your own. Once you have finished, restart the video and review the answers. Solve for x .

1. $\frac{x}{3} = 7$

2. $x + 9 = -2$

3. $-3 + x = 7$

4. $3x = 7$

Objective 2: Solving Multi-Step Linear Equations

Example: Solve for y.

$$-10y + 15 = 45$$

Example: Solve for x.

$$\frac{x}{-2} + 8 = 11$$

Example: Solve for x.

$$3x + 7 = 5x + 7$$

Example: Solve for x.

$$5x - 8 = 6x - 1$$

Pause the video and try these problems on your own. Once you have finished, restart the video and review the answers. Solve for x .

1. $5x - 9 = -6$

2. $\frac{x}{4} + 7 = -2$

3. $7 + 3x = x + 7$

Objective 3: Solving Linear Equations That Can Be Simplified by Combining Like Terms

Example: Solve for x .

$$1 + 4x + 2 = -3 + 2x + 14$$

Example: Solve for x .

$$-2(3x - 4) = 2x$$

Example: Solve for k.

$$-(6k - 5) - (-5k + 8) = -3$$

Example: Solve for m.

$$-3(m - 4) + 2(5 + 2m) = 29$$

Pause the video and try these problems on your own. Once you have finished, restart the video and review the answers. Solve for x.

1. $-5 + 2x - 7 = 4 + x - 3x$

2. $3 + 2(3x - 5) = 7 + x$

3. $-(x - 3) + 5 = 7 - 3(x + 2)$