

# Solving One-Step Linear Equations

Algebra Worksheet · Grade 6–8

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Learning Objectives

- Understand that a linear equation has a highest exponent of one on the variable
- Isolate the variable by applying the inverse operation (addition or subtraction) to both sides of the equation
- Solve one-step linear equations involving positive and negative integers

## Problems

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1. Solve for x.

$$x + 3 = 7$$

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2. Solve for x.

$$x - 5 = 2$$

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3. Solve for x.

$$x + 7 = 10$$

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4. Solve for x.

$$-5 + x = 2$$

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5. Solve for x. Remember: subtracting a larger number from a smaller number gives a negative answer.

$$x + 7 = 2$$

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6. Solve for x. Apply your knowledge of adding and subtracting signed numbers.

$$x - 5 = -12$$

Scan to watch



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7. Solve for x.

$$x + 9 = -4$$

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8. Solve for x.

$$x - 8 = -3$$

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9. Solve for x.

$$-14 + x = -6$$

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10. Solve for x. This problem combines a negative term on the left side with a negative result.

$$x + 15 = -7$$

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Scan to watch



# Solving One-Step Linear Equations — Answer Key

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## Answer Key

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### 1. Answer: $x = 4$

- Subtract 3 from both sides:  $x + 3 - 3 = 7 - 3$
  - $x = 4$
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### 2. Answer: $x = 7$

- Add 5 to both sides:  $x - 5 + 5 = 2 + 5$
  - $x = 7$
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### 3. Answer: $x = 3$

- Subtract 7 from both sides:  $x + 7 - 7 = 10 - 7$
  - $x = 3$
- 

### 4. Answer: $x = 7$

- Add 5 to both sides:  $-5 + 5 + x = 2 + 5$
  - $x = 7$
- 

### 5. Answer: $x = -5$

- Subtract 7 from both sides:  $x + 7 - 7 = 2 - 7$
  - $2 - 7 = -5$ , so  $x = -5$
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### 6. Answer: $x = -7$

- Add 5 to both sides:  $x - 5 + 5 = -12 + 5$
  - $-12 + 5 = -7$ , so  $x = -7$
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### 7. Answer: $x = -13$

- Subtract 9 from both sides:  $x + 9 - 9 = -4 - 9$
  - $-4 - 9 = -13$ , so  $x = -13$
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### 8. Answer: $x = 5$

- Add 8 to both sides:  $x - 8 + 8 = -3 + 8$
  - $-3 + 8 = 5$ , so  $x = 5$
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### 9. Answer: $x = 8$

- Add 14 to both sides:  $-14 + 14 + x = -6 + 14$
  - $-6 + 14 = 8$ , so  $x = 8$
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### 10. Answer: $x = -22$

- Subtract 15 from both sides:  $x + 15 - 15 = -7 - 15$

Scan to watch



- $-7 - 15 = -22$ , so  $x = -22$

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