

## SKILL

**72****Skills Readiness****Solve for a Variable**

Solving for a variable is the same thing as transforming an equation to represent one quantity in terms of another.

To solve for a variable, identify the variable in the equation that you wish to isolate and then use inverse operations on each side of the equation to isolate the desired variable.

Example: Solve the equation  $8x + 3 = 2y + 15$  for  $y$ .

You want to isolate  $y$ , so you need to move everything else to the other side of the equation.

$$8x + 3 = 2y + 15$$

$$8x + 3 - 15 = 2y + 15 - 15 \quad \text{Subtract 15 from both sides.}$$

$$8x - 12 = 2y \quad \text{Simplify.}$$

$$\frac{8x}{2} - \frac{12}{2} = \frac{2y}{2} \quad \text{Divide both sides by 2.}$$

$$4x - 6 = y \quad \text{Simplify.}$$

**Practice on Your Own**

Solve each equation for the indicated variable.

1.  $3x + y = 15$ ;  $y$

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2.  $y - 5 = 3x$ ;  $y$

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3.  $I = prt$ ;  $t$

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4.  $3x + 3y = 12$ ;  $y$

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5.  $V = \pi r^2 h$ ;  $h$

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6.  $7y - 21x = 14$ ;  $y$

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7.  $A = \frac{1}{2}bh$ ;  $h$

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8.  $2x + 4 = 9 - y$ ;  $y$

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9.  $2x + 5 = 6y - 9$ ;  $x$

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**Check**

Solve each equation for the indicated variable.

10.  $y - 6x = 11$ ;  $y$

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11.  $V = \ell wh$ ;  $h$

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12.  $7x + 7y = 42$ ;  $x$

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13.  $8x + 2y = 22$ ;  $y$

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14.  $3x - 4 = y + 8$ ;  $y$

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15.  $5 - 2y = 8x - 1$ ;  $y$

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