



MasterMath

Algebra

SOLVING TWO-STEP EQUATIONS





Solving Two-Step Equations

Rules of the Game:

- ❖ You can make any change to one side of the equation, as long as you make the same change to the other side.
 $x = 16$, so $x + 4 = 16 + 4$
- ❖ Isolate the variable.
Manipulate equations so variable is isolated: $x = \text{something}$
- ❖ Combine Like Terms.
 $x + 3x + 5 + 2 \rightarrow 4x + 7$
- ❖ Use the Inverse Operation (opposite) to move clutter away from the variable.
 $x + 5 = 15 \rightarrow x + 5 - 5 = 15 - 5 \rightarrow x = 10$

Solving Two-Step Equations

Examples:

$$2x = 6$$

$$2x \div 2 = 6 \div 2$$

$$x = 3$$

$$3z - 6 = 15$$

$$3z - 6 + 6 = 15 + 6$$

$$3z = 21$$

$$3z \div 3 = 21 \div 3$$

$$z = 7$$

Solving Two-Step Equations

You try it!

$$3y + 9 = 30$$



Solving Two-Step Equations

You try it!

$$3y + 9 = 30$$

$$3y + 9 - 9 = 30 - 9$$

$$3y = 21$$

$$\frac{3y}{3} = \frac{21}{3}$$

$$y = 7$$

Solving Two-Step Equations

You try it!

$$44 = 5a - 7 + 12a$$

Solving Two-Step Equations

You try it!

$$44 = 5a - 7 + 12a$$

$$44 = 5a + 12a - 7$$

$$44 = 17a - 7$$

$$44 + 7 = 17a - 7 + 7$$

$$51 = 17a$$

$$51 \div 17 = 17a \div 17$$

$$3 = a$$

Solving Two-Step Equations

You try it!

Your cell phone bill was \$48.00. Your cell phone company charges a monthly fee of \$30.00 plus \$.25 for each text message. How many text messages did you send?

Solving Two-Step Equations

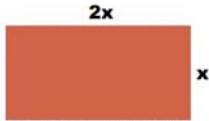
You try it!

Your cell phone bill was \$48.00. Your cell phone company charges a monthly fee of \$30.00 plus \$0.25 for each text message. How many text messages did you send (T)?

$$\begin{aligned} 30 + .25T &= 48 \\ 30 - 30 + .25T &= 48 - 30 \\ .25T &= 18 \\ .25T + .25 &= 18 + .25 \\ T &= 72 \end{aligned}$$

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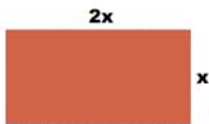
You try it!



The perimeter of this rectangle is 36". Find x.

Solving Two-Step Equations

You try it!



The perimeter of this rectangle is 36". Find x.

$$\begin{aligned} x + 2x + x + 2x &= 36'' \\ 6x &= 36'' \\ \frac{6x}{6} &= \frac{36''}{6} \\ x &= 6'' \end{aligned}$$

Solving Two-Step Equations
