

Math 7H - Unit 2b

Day 5 - Solving Two-Step Equations

Lesson Objectives:

- I can solve two-step equations.
- I know how to show work when solving equations.

Constant: A number on the same side of the equation as the variable but separated from the variable by an addition or subtraction sign.

Coefficient: A number multiplied by a variable.

A **two-step equation** contains TWO operations. To solve a two-step equation, use inverse operations to undo each operation in reverse order.



Model each equation on your algebra mat. Then sketch a picture in your notes.

3x + 6 = 12

What are the inverse operations for this equation?

Subtraction Prop. (=)

Division Prop. (=)

Don't forget to check your work!

Model each equation on your algebra mat. Then sketch a picture in your notes.

4x - 7 = -15

What are the inverse operations for this equation?

Addition Prop. (=)

Division Prop. (=)

Don't forget to check your work!

The Party



$$3x + 1 = 7$$

$$\begin{array}{r} -1 -1 \\ \hline 3x = 6 \end{array}$$

Subtraction Prop. (=)

3, x, and 1 are at a party. 7 has already gone home. 1 gets a text from his mom and has to go home. Show the work to remove him from the party.

$$\begin{array}{r} 3x = 6 \\ \hline x = 2 \end{array}$$

Division Prop. (=)

3 and x have been "dating" for a long time. But at the party they have a fight and break up. Show the work to remove 3 from the party.

$$5x - 4 = 11$$

$$\begin{array}{r} +4 \quad +4 \\ \hline 5x = 15 \\ \hline x = 3 \end{array}$$

addition prop(=)
division prop(=)

$$4h + 6 = 22$$

$$\begin{array}{r} -6 \quad -6 \\ \hline 4h = 16 \\ \hline h = 4 \end{array}$$

Subtraction prop(=)
Division prop(=)

$$-5 - b = 8$$

$$\begin{array}{r} +5 \quad +5 \\ \hline -b = 13 \\ \hline b = -13 \end{array}$$

Add. prop(=)
division prop(=)

$$10 = -9 + x$$

$$\begin{array}{r} +9 \quad +9 \\ \hline 19 = x \end{array}$$

addition prop(=)

The Story of X

In a table, write down everything that happens to the variable x.

$$7 - 2x = -13$$

x	Equals 10
times -2	divide by -2
plus 7	subtract 7
Equals -13	Now do the OPPOSITE

What's Happening to x?

What we need to do...

$$2n - 5 = 21$$

$$\begin{array}{r} +5 \quad +5 \\ \hline 2n = 26 \\ \hline n = 13 \end{array}$$

addition prop(=)
division prop(=)

$$9 = 15 + 2p$$

$$\begin{array}{r} -15 \quad -15 \\ \hline -6 = 2p \\ \hline -3 = p \end{array}$$

subtraction prop(=)
division prop(=)

$$8 - t = -25$$

$$\begin{array}{r} +t \quad +t \\ \hline 8 = -25 + t \\ \hline t = -33 \end{array}$$

addition prop(=)
division prop(=)

$$3 - y = 13$$

$$\begin{array}{r} -3 \quad -3 \\ \hline -y = 10 \\ \hline y = -10 \end{array}$$

subtraction prop(=)
division prop(=)

Steps for Solving Equations

Step #1 Get rid of the constant

$$2x + 1 = 9$$

$$\begin{array}{r} -1 \quad -1 \\ \hline 2x = 8 \end{array}$$

Step #2 Get rid of the coefficient

$$\begin{array}{r} \div 2 \quad \div 2 \\ \hline x = 4 \end{array}$$

$$-4 + 7x = 3$$

$$1.5 = 1.2y - 5.7$$

Homework

2.6 pg 86 #1-19, 26-28, 35-38, 42-46

* Individual Think Time *



What to do if you get stuck...

1. Reread the problem. Did you write it down correctly?
2. Reread your notes. Is there a problem similar that we did together in class?
3. Find a problem similar in your book. Try this one to see if it helps.
4. Skip the problem until the end of Individual Think Time. Then ask an "educated" question of a neighbor or Mrs. Call.

Today we're working by...

