

Math 8 (week of April 27)

This week we have 2 worksheets that are worth two grades.

The first worksheet has a variable on both sides of the equation. We are going to have to do the opposite to one or the other to cancel that variable out. Then we will have a two step equation to solve.

Examples:

$$-2x - 1 = -109 + 7x$$

$$\begin{array}{r} -2x - 1 = -109 + 7x \\ +2x \quad +2x \\ \hline -1 = -109 + 9x \end{array}$$

Add 109 to both sides

Divide both sides by 9

$$-6x + 5 = -4x - 19$$

$$\begin{array}{r} -6x + 5 = -4x - 19 \\ +6x \quad +6x \\ \hline 5 = 2x - 19 \end{array}$$

Add 19 to both sides

Divide both sides by 2

The left side has $-2x$ and the right side has $+7x$. We can do the opposite to either one of those to cancel one of them out.

I'm going to add $2x$ to both sides.

The $2x$ cancel out. $7x + 2x = 9x$

$$\begin{array}{r} -1 = -109 + 9x \\ +109 \quad +109 \\ \hline 108 = 9x \\ \frac{108}{9} = \frac{9x}{9} \\ \boxed{12 = x} \end{array}$$

Get rid of either $-6x$ or $-4x$ by adding the opposite.

Add $6x$. $6x$ cancels
 $-4x + 6x = 2x$

$$\begin{array}{r} 5 = 2x - 19 \\ +19 \quad +19 \\ \hline 24 = 2x \\ \frac{24}{2} = \frac{2x}{2} \end{array}$$

$$\boxed{12 = x}$$

The second worksheet has the distributive property in each equation. The easiest way is to multiply everything in the parentheses by the number in front and you will be left with the same two step equation we have been doing.

Example:

$$-2(7x-8)=16$$

Now we have!

$$-14x+16=16$$

Subtract 16
from both sides

divide by -14

Multiply -2 by everything in the parentheses.

$$-2 \cdot 7x = -14x$$

$$-2 \cdot -8 = +16$$

$$\begin{array}{r} -14x + 16 = 16 \\ -16 \quad -16 \\ \hline \end{array}$$

$$\begin{array}{r} -14x = 0 \\ -14 \quad -14 \\ \hline \end{array}$$

$$\boxed{x=0}$$

$$5(1-4x)=-15$$

Now we have:

$$5-20x=-15$$

Subtract
5 from both sides

divide by
-20

Multiply 5 by everything in the parentheses.

$$5 \cdot 1 = 5$$

$$5 \cdot -4x = -20x$$

$$\begin{array}{r} 5-20x = -15 \\ -5 \quad -5 \\ \hline \end{array}$$

$$\begin{array}{r} -20x = -20 \\ -20 \quad -20 \\ \hline \end{array}$$

$$\boxed{x=1}$$

There is another way to solve the distributive property problems. You can divide both sides of the equation by the number in front of the parentheses.

Example:

Divide both sides of the equation by the number in front of the parentheses (-2)

$$-2(7x-8) = 16$$

-2 cancels

$$16 \div -2 = -8$$

$$\frac{-2(7x-8)}{-2} = \frac{16}{-2}$$

Now we have:

$$\begin{array}{r} 7x - 8 = -8 \\ +8 \quad +8 \\ \hline 7x = 0 \\ \frac{7x}{7} = \frac{0}{7} \\ \boxed{x = 0} \end{array}$$

Add 8 to both sides

Divide by 7

$$5(1-4x) = -15$$

Now we have:

$$\begin{array}{r} 1 - 4x = -3 \\ -1 \quad -1 \\ \hline -4x = -4 \\ \frac{-4x}{-4} = \frac{-4}{-4} \\ \boxed{x = 1} \end{array}$$

Divide both sides of the equation by the number in front of the parentheses (5)

$$\frac{5(1-4x)}{5} = \frac{-15}{5}$$

5 cancels

$$-15 \div 5 = -3$$

Subtract 1 both sides

Divide by -4

Pick the way you like best and use it. These are hard problems to do so do the best you can. I hope the examples help. Make sure you do the problems the best you can. I may take "participation grades" on some of these assignments (100 if you do it). But I have to see some work not just answers for that 100.

Good luck and stay safe,
Coach Fred

Two Step Equations Math 8

#1

Name: _____

Date: April 27, 2020Worksheet generated at www.math.com

1.) $7x + 1 = 6x - 8$

2.) $4x + 5 = 3 + 3x$

3.) $x - 6 = 6x - 46$

4.) $7x + 5 = 7 + 6x$

5.) $10 + 7x = -7x + 38$

6.) $-6x + 5 = -x - 10$

7.) $8 + 7x = -4x + 129$

8.) $5x + 8 = -20 - 2x$

9.) $4x + 4 = -x + 9$

10.) $x + 9 = -6x - 75$

11.) $x + 3 = -5x - 27$

12.) $-3x + 10 = 18 - 2x$

13.) $-7x - 10 = 3x + 60$

14.) $2x + 8 = 3x + 17$

15.) $5x + 10 = -7x - 98$

16.) $6x + 7 = 7x + 19$

Algebra Practice Problems

#2

Name: _____

Date: _____

Worksheet generated at www.math.com

1.) $2(3x - 10) = 34$

2.) $2(3 + 6x) = 6$

3.) $2(1 - 7x) = 114$

4.) $5(6 - 3x) = -150$

5.) $-7(5x + 6) = -462$

6.) $7(-3 + 4x) = 231$

7.) $-6(1x + 6) = -30$

8.) $6(10 - 3x) = -48$

9.) $-2(-4x + 2) = 52$

10.) $7(3 + 5x) = 196$