

# First 9 Weeks Project

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# What is our goal ?

Our goal is to explain how to solve

- \*Multiplicative Inverse

- \*Addition Property of Equality

- \*Subtraction Property of Equality

- \*Distributive Property

- \*and Written Questions

And we will explain how to create an equation from a written question

# Multiplicative Inverse

$$4x = \frac{2}{5}$$

So first we would do is divide  $4x$  by 4 and  $2/5$

when you divide  $\frac{2}{5}$  by 4 you would have to turn the 4 into a fraction

$4 = 4/1$  and then you would do  $4/1$  divided by  $\frac{2}{5}$  you would first flip the  $\frac{2}{5}$  to  $5/2$   
then multiply  $4/1$  by  $5/2$  and that would equal

$$x = 6 \frac{2}{3}$$

# Addition Property of Equality

$$x - \frac{1}{4} = \frac{2}{5}$$

First you would do the opposite of subtraction by doing  $-\frac{1}{4}$  added on both sides.

$$x - \frac{1}{4} = \frac{2}{5}$$

$$-\frac{1}{4} \quad -\frac{1}{4}$$

$$x = \frac{13}{20}$$

# Subtraction Property of Equality

$$15 - \frac{2}{3}x = 20$$

First you would -15 from both sides.

$$15 - \frac{2}{3}x = 20$$

$$\begin{array}{r} -15 \quad -15 \\ \hline \end{array}$$

Then you would get 5 and bring down the  $-\frac{2}{3}$  and multiply  $\frac{3}{2} * \frac{5}{1}$  and simplify it.  
and the answer would be  $x = \frac{8}{2}$  aka 4

# Distributive Property

$$5 - 2(x - 3) = -23$$

We would distribute 2 creating

$$5 - 2x - 6 = -23$$

then subtract 5 from 5 and -23

$$-5 - 2x - 6 = -23$$

Next do -6 on 6 and -28

$$-6 - 2x - 6 = -23$$

Finally divided 2 on 2x and -34

$$-6 - 2x - 6 = -23$$

$$x = 17$$

# Example written question

While trying to find insurance, Jane found one called “insurance A” their starting payment is \$150 plus \$50 for every month. She also found another called “insurance B” where the starting payment is \$200 plus \$25 for each month. How long would it be until she would have to pay the same amount ?

# What's the question asking ?

It's asking, how many months would it take until she would pay the same amount of money with both insurance company ?

To solve this look at the key words and the numbers given to solve and you end up finding in the question as

$$150 + 50x = 200 + 25x$$

do you see how we figured out the equation ?

We took “starting payment is \$150 plus \$50 for every month” to create  $150 + 50x$

(  $50x = \$50$  every month ) and “starting payment is \$200 plus \$50 for each month” to create  $200 + 25x$  (  $25x = \$25$  every month )

# Solving the equation

$$150 + 50x = 200 + 25x$$

We want to start with moving everything to the left

( you can move it to the right but for now we are moving it left for this equation ) so we do  $- 25x$  to  $50x$  and  $25x$  because what you do to one side you do to the other. The equation should look like

$150 + 25x = 200$  we go to the left side and subtract 150 from 150 and 200 because of the both sides rule. Now you should have  $25x = 50$  . Last step, divide 25 to 25 and 50 this should eliminate the 25, 50 divided by 25 equals 2. so your answer is 2 months