

# EQUATIONS PROJECT.

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5TH PERIOD

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# INTRODUCTION

Objective:

To demonstrate our understandings of writing and solving equations.

Equation:

a statement that the values of two mathematical expressions are equal (indicated by the sign =).

# MULTIPLICATIVE INVERSE

$$\begin{array}{r|l} 4x = \frac{2}{5} & \\ 4 & 4 \\ \hline x = & \frac{1}{10} \end{array}$$

To solve this equation you are going to separate the variable from 4 so divide each side by 4. since you're dividing by a fraction you put the 4 over a one and change the

$$\frac{2}{5} \div \frac{4}{1} \curvearrowright \frac{2}{5} \times \frac{1}{4} = \frac{2}{20} \frac{1}{10}$$

# ADDITION PROPERTY OF EQUALITY

$$\begin{array}{r|l} x - \frac{1}{4} & = \frac{2}{5} \\ + \frac{1}{4} & + \frac{1}{4} \\ \hline x & = \frac{13}{20} \end{array}$$

To solve this equation the first thing you are going to want to do is add  $\frac{1}{4}$  to both sides of the equation separating the variable from any numbers, then you will add  $\frac{2}{5}$  and  $\frac{1}{4}$  together and get the answer to your problem.

$$\frac{2}{5} + \frac{1}{4} = \frac{8}{20} + \frac{5}{20} = \frac{13}{20}$$

# SUBTRACTION PROPERTY OF EQUALITY AND MULTIPLICATIVE INVERSE.

$$\begin{array}{r|l} 15 - \frac{2}{3}x = 20 & \\ -15 & -15 \\ \hline -\frac{3}{2} * -\frac{2}{3}x = 5 * -\frac{3}{2} & \\ \hline x = -7.5 & \end{array}$$

To solve this equation you will have to, first subtract 15 from both sides. So that the 15 equals out (this is subtraction of equality) and now the equation is  $-\frac{2}{3}x = 5$ . then you flip  $-\frac{2}{3}$  to  $-\frac{3}{2}$  and multiply it on both sides, so  $-\frac{2}{3}$  times  $-\frac{3}{2}$  which equals out and then 5 times  $-\frac{3}{2}$ . (this is multiplicative inverse) and the answer is  $x = 7.5$

# DISTRIBUTIVE PROPERTY AND DIVISION PROPERTY OF EQUALITY.

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

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

$$\cancel{12} - 2x = -23$$

$$\cancel{-12} = -12$$

$$\cancel{-2x} = -11$$

$$\cancel{-2} = -2$$

$$x = 5.5$$

To solve this equation first you have to multiply 2 times x in the parenthesis then multiply 2 times 3 in the parenthesis this is distributive property). So you have  $5 - 2x + 6 = -23$ .

next you add 5 plus 6, so now the equation is

$12 - 2x = -23$ . Then you subtract -12 from both sides, the 12 equals out and  $-23 - 12$  equals -11.

now the equation  $-2x = -11$ , so you divide -2 from -2 now the -2 equals out and -11 divided by -2 equals 5.5 (this is division property of equality. so the answer is  $x = 5.5$

Larry and Mike collect baseball cards, Larry has 6 cards already and earns 2 per week and Mike earns 4 per week, and owes Larry 3 cards how many weeks until they have the same amount of cards?

$$\begin{array}{r|l}
 2x+6 & = 4x-3 \\
 -4 & \quad -4 \\
 \hline
 -2x+6 & = -3 \\
 -6 & \quad -6 \\
 \hline
 -2x & = 9 \\
 -2 & \quad -2 \\
 \hline
 x & = -4.5
 \end{array}$$

To solve this equations first you would subtract 4 from each variable on both sides so that the variable is on the left and the (4x) equals out. Then you would subtract 6 from each side. 6 equals out and you subtract -6 from -3 (this is subtraction of equality.) Now your equation is  $-2x=9$ . Next you divide -2 by -2 and that equals out then you divide 9 by -2 (this is division of equality) and the answer is  $x= -4.5$