March 3, 2011 March 11, 2013 March 20, 2015 March 12, 2014

April 10, 2018

6.2 Solving Equations by Using Balance Strategies

TASK 1, 2 & 3

Mini Lesson #2

Grade Eight	Grade Nine
PR2 Model and solve problems using linear equations of the form: • $ax = b$; • $\frac{x}{a} = b$, $a \neq 0$; • $ax + b = c$; • $\frac{x}{a} + b = c$ $a \neq 0$; • $a(x + b) = c$ concretely, pictorially and symbolically, where a, b and c are integers.	**PR3** Model and solve problems using linear equations of the form: $ax = b$; $\frac{x}{a} = b, a \neq 0$; $ax + b = c$; $\frac{x}{a} + b = c, a \neq 0$; $ax = b + cx$; $a(x + b) = c$; $ax + b = cx + d$; $a(bx + c) = d(ex + f)$; $\frac{a}{x} = b$, $x \neq 0$ *where a, b, c, d, e and f are rational numbers.*

Grade Ten
A1 ***Geometry, Measurement and Finance 10*** Solve problems that require the manipulation and application of formulas related to perimeter, area, the Pythagorean theorem, primary trigonometric ratios, income **RF10** ***Number, Relations and Functions 10*** Solve problems that involve systems of linear equations in two variables, graphically and algebraically.

Jan 21-8:53 AM

Example 2 Using Algebra Tiles to Solve an Equation

No need to copy. Look over the solution and see how they use tiles

SEE IT

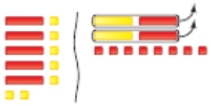
Solve: $-3c + 7 = 2c - 8$

A Solution

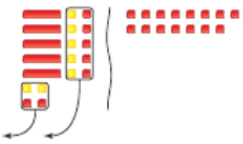
Algebra Tile Model

Model the equation with tiles.

Add two $-c$-tiles to each side to get the terms containing c on the same side. Remove zero pairs.

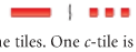


Add seven -1-tiles to each side to get the constant terms on the same side. Remove zero pairs.



Arrange the remaining tiles on each side into 5 groups.

One $-c$-tile is equal to -3.



Flip the tiles. One c-tile is equal to 3.

Mar 7-10:38 PM

Example 2

Algebraic Solution

$-3c + 7 = 2c - 8$

$-3c + 7 - 2c = 2c - 8 - 2c$

$-5c + 7 = -8$

$-7 \quad +7 \quad -5c = -8 - 7$

$-5c + 7 - 7 = -8 - 7$

$-5c = -15$

$\frac{-5c}{-5} = \frac{-15}{-5}$

$c = 3$

Remember the steps:

1) Simplify each side of the equation separately.

2) Bring like terms to the same side of the equals sign by performing inverse operations.

3) Isolate the variable by performing inverse operations

4)Whatever you do to one side you must do to the other to keep the equation balanced or equal.

5) Make sure the variable is positive.

Feb 6-8:36 PM

Let's try:

a) $3y - 6 = 9y$

$+6 \qquad +6$

$+(-9y) \qquad +(-9y)$

$-6y = 6$

$\frac{-6y}{-6} = \frac{6}{-6}$

$y = -1$

Verify:

$3(-1) - 6 = 9(-1)$?

$-3 - 6 = -9$?

Remember the steps:

1) Simplify each side of the equation separately.

2) Bring like terms to the same side of the equals sign by performing inverse operations.

3) Isolate the variable by performing inverse operations

4)Whatever you do to one side you must do to the other to keep the equation balanced or equal.

5) Make sure the variable is positive.

Feb 6-8:36 PM

Recall: → mult → 3(-2m+4)

SOLVING EQUATIONS:

(using the distributive property)

2(-5 + 3x) = 8

+10 +10

$-10 + 6x = 8$

$\frac{6x}{6} = \frac{18}{6}$

$x = 3$

How do we begin to try and isolate the variable x? We need to apply the distributive property! This allows us to get rid of the brackets

Verify:

2(-5 + 3x) = 8

Mar 14-9:18 AM

SOLVING EQUATIONS:

(using the distributive property)

2(-3x + 1.5) = 6

$-6x + 3 = 6$ (+3 −3)

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

$x = -\frac{1}{2}$ or -0.5

Verify:

$2[-3(-0.5) + 1.5] = 6$?

$2[1.5 + 1.5] = 6$?

$2[3] = 6$

$6 = 6$ ✓

3(-2m+4)

How do we begin to try and isolate the variable x? We need to apply the distributive property! This allows us to get rid of the brackets

Mar 14-9:18 AM

End of mini lesson #2

Apr 10-6:49 AM