6.1

TASK 1, 2 & 3

Mini Lesson #1

March 3, 2011   March 11, 2013   March 11, 2016

April 9, 2018

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.
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What is an equation?

An equation is an expression with an "equal" sign and another expression.

Examples:

$$x + 5 = 4 \qquad\qquad 2x - 6 = 14$$

There is a Left side, an equal sign, and a right side.

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Linear Equations:	Quadratic Equations:

Linear Equations:

A Linear (straight line) equation is a polynomial of degree 1.

Examples:

$$x^1 + 5 = 4$$

$$2x^1 - 6 = 13$$

Quadratic Equations:

A Quadratic equation is a polynomial of degree 2.

Examples:

$$x^2 - 3x - 10 = 5$$

$$x^2 - 25 = 0$$

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SOLVING EQUATIONS:

In order to solve for the unknown variable, you must isolate the variable using the zero effect (Inverse operations)

ZERO EFFECT: For every positive cancels out every negative to equal zero.

Examples: $$-4 + (+4) = 0$$

$$17 + (-17) = 0$$

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SOLVING EQUATIONS:

The goal to solve an equation is to get the _unknown variable_ by itself. That is to isolate the variable.

To do this, you must think of an equation like a balance scale.

You must keep the equation balanced at all times!

Therefore, whatever mathematical operation you perform to the left side, you must perform the same operation to the right side.
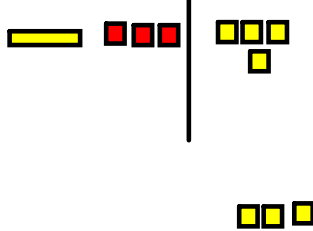
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SOLVING EQUATIONS:

EXAMPLE:

$x - 3 = 4$

Things to Remember

Model the equation first:

Did you isolate the variable?

Did you have to divide by the number in front of the variable?
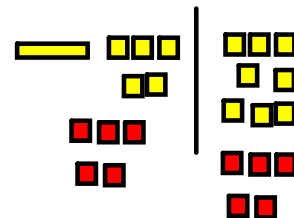
Did you need to get rid of the fraction?

Did you need to expand?

Did you have to collect like terms first?

EXAMPLE:

$x + 5 = 8$
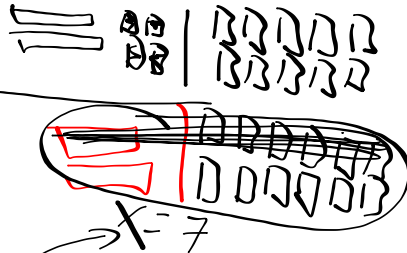

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SOLVING EQUATIONS:

EXAMPLE:

$2x - 4 = 10$

$x = 7$

If variable is greater than 1, you would divide by <u>the number in front</u> of the variable to make it worth one whole.

$$\frac{2x}{2} = \frac{14}{2}$$

$x = 7$

Things to Remember

Model the equation first:

Did you isolate the variable?

Did you have to divide by the number in front of the variable?

Did you need to get rid of the fraction?

Did you need to expand?

Did you have to collect like terms first?

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SOLVING EQUATIONS:

EXAMPLE:

$3x - 3 = 9$

Things to Remember

Model the equation first:

Did you isolate the variable?

Did you have to divide by the number in front of the variable?

Did you need to get rid of the fraction?

Did you need to expand?

Did you have to collect like terms first?

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