

Secondary I 9/2/16

Notes

I. Extra Vocabulary Lesson

A. Coefficient

B. Variable

C. Constant

D. Algebraic Expression

Variable
Co-efficient

Algebraic
Expression

Variable

Constant

II. Guess and Check Method

~~A. $x - 6 = 4$~~ → A. Make an educated

~~B. 1) Does it work?~~ guess about the solution.

B. Example $x - 6 = 4$

1) Does it work?

$$x - 6 \stackrel{?}{=} 4$$

$$11 - 6 \stackrel{?}{=} 4$$

$$5 \stackrel{?}{=} 4$$

No

2) The value is too high.

2) Does 10 work?

$$x - 6 \stackrel{?}{=} 4$$

$$10 - 6 \stackrel{?}{=} 4$$

$$4 \stackrel{?}{=} 4$$

Yes!

C. Show your work with this method
Not just mental math.

III. Solving One-Variable Two-Step Equations

see Back

A. Properties of Equality

1) Addition Property

a. Numbers

$$3 = 3$$

$$3 + 2 = 3 + 2$$

$$5 = 5$$

b. Algebra

$$a = b$$

$$a + c = b + c$$

2) Subtraction Property

a. Numbers

$$7 = 7$$

$$7 - 5 = 7 - 5$$

$$2 = 2$$

b. Algebra

$$a = b$$

$$a - c = b - c$$

3) Multiplication Property

a. Numbers

$$3 = 3$$

$$3 \cdot 4 = 3 \cdot 4$$

$$12 = 12$$

b. Algebra

$$a = b$$

$$a \cdot c = b \cdot c$$

4) Division Property

a. Numbers

$$15 = 15$$

$$\frac{15}{3} = \frac{15}{3}$$

$$5 = 5$$

b. Algebra

$$a = b$$

$$\frac{a}{c} = \frac{b}{c}$$

where $c \neq 0$.

B. Examples

$$1) \quad 3x - 2 = 6$$

$$3x - 2 + 2 = 6 + 2$$

$$3x = 8$$

$$\frac{3x}{3} = \frac{8}{3}$$

$$x = \frac{8}{3}$$

$$2) \quad \frac{1}{2}z + 4 = 10$$

$$\frac{1}{2}z + 4 - 4 = 10 - 4$$

$$\frac{1}{2}z = 6$$

$$2 \cdot \frac{1}{2}z = 6 \cdot 2$$

$$z = 12$$

Student Problem

$$3) \quad 5x - 10 = 20$$

$$5x - 10 + 10 = 20 + 10$$

$$5x = 30$$

$$\frac{5x}{5} = \frac{30}{5}$$

$$x = 6$$

Addition Properties of Equality
Combine like terms
Division Property of Equality
Simplify.

Subtract Property of Equality
Combine like terms
Multiplication Property of Equality
Simplify.

Student Problem

$$4) \quad \frac{1}{3}x + 9 = 21$$

$$\frac{1}{3}x + 9 = 21$$

$$\frac{1}{3}x + 9 - 9 = 21 - 9$$

$$\frac{1}{3}x = 12$$

$$3 \cdot \left(\frac{1}{3}x\right) = 12 \cdot 3$$

$$x = 36$$

Check student Understanding of Vocabulary and concepts while walking around and seeing their work.

~~III~~ IV Solving for a Define Unit

A. Airplane Example

1) An airplane descends in altitude from 20,000 feet to 10,000 feet. A gauge at Radar Traffic Control reads that the airplane's altitude drops 1.8939 miles. How many feet are in a mile?

m = number of feet in a mile

a) Descent in feet?

$$20,000 - 10,000 = 10,000$$

b) Writing the equation

$$1.8939m = 10,000 \text{ feet}$$

$$\frac{1.8939m}{1.8939} = \frac{10,000}{1.8939}$$

$$m = \frac{10,000}{1.8939}$$

$$m \approx 5280 \text{ feet}$$

Division Property
of equality.

Simplify

Round Answer
to whole numbers

Solution = There are 5280 feet in a mile.

B. Student Example

1) An ostrich that is 108 inches tall is 20 inches taller than 4 times the height of a kiwi. What is the height of a kiwi in inches?

Let K = the height of a Kiwi

$$108 = 20 + 4K$$

$$108 - 20 = 20 - 20 + 4K$$

$$88 = 4K$$

$$\frac{88}{4} = \frac{4K}{4}$$

$$22 = K$$

The Kiwi is 22 inches tall.

• check for student understanding by walking around. Add hints if needed.

Homework

Pg. 9 # 1, 3-14, 18

Review Worksheet Do Thursday and Monday.