Lesson 4.3: Solve Equations in One Variable

Expressions and Equations

Solving Multi-Step Linear Equations

Teacher Answer Key

**Class Worksheet**

**Question 1:**

Write out all steps and explain each line when solving for x.

4(3x - 12) = 6x – 3 + x

What is our first step? (To draw a line down the center of the equation)

What is our second step? (To put a 1 in front of the x)

What is our third step? (To distribute)

What are we left with? (12x - 48 = 6x – 3 + 1x)

What is our fourth step? (To check to see if we can combine like terms on each side of the equals sign.)

What are we left with? (12x - 48 = 7x – 3 or 12x - 48 = -3 +7x)

What is our fifth step? (To move the variable over so that they are all together)

Does it matter which variable we choose to move? (Not really)

How do we decide which variable to move? (We want to move one that will keep us from having to deal with negatives.)

So what are we going to move? (The 7x)

What are we left with? (5x - 48 = -3 )

What do we do next? (Move the constants so that they are together)

How do we do that? (Move the constants to the opposite side of the variables)

What are we left with? (5x = 45 )

And now what does this equation remind us of? ( A single-step equation)

What operation do we use to solve for x? Why? (Division because it is the opposite of multiplication.)

X= ? (9)

**Question 2:**

You have $23.56 to spend on apples for the apple-bobbing contest at the fall festival.

The flat rate for shipping is $4.00 and the apples cost $1.99 a pound. How many apples can you buy?

Show your work and explain why you did what you did in each step.

Does your answer make sense?

How could you check your answer?

Could you afford 10 apples? Explain.

Using a graphing calculator and looking at the graph of the equation, how do you know the maximum number of apples you can afford?

Looking at the table of the equation, what is the total price for 3 apples? 8 apples? How much would it cost to purchase 100 apples

**Question 3:**

List three real-world examples where creating and solving a linear equation would be helpful.

1.

2.

3.