Name: _____   Date: _____

Math 9 Adapted Journal Entries

Learning Guide 9

Expectation #1: Solve multi-step linear equations with rational coefficients.

Part A) Moving variables and constants to opposite sides of the equation.

1. Solve the following equations by applying the opposite operation to both sides, clearly showing your steps:

* When solving equations we want to make sure that all variables are moved to one side of the equal sign and all the constants are moved to the other side of the equal sign. The only way to move a term is to add or subtract it. (You never multiply or divide when moving terms from one side to the other.)

a) $10x = 18 + x$ Start by moving the x's to one side (e.g. subtract x from both sides of the equation.)

Finally, isolate the 'x' (by dividing both sides by 9).

Remember to check you answer by substituting it back into the original equation.

b) $3x - 3 = 2x + 9$ Start by moving the x's to one side (e.g. subtract 2x from both sides of the equation.)

Next move the numbers to the other side (e.g. add 3 to both sides of the equation.)

c) $10 - 3x = -7x$

Start by moving the x's to one side (e.g. add 7x to both sides of the equation). * NOTICE this leaves '0' on the right side of the equation.

Next move the numbers to the other side (e.g. subtract 10 from both sides of the equation.)

Finally, isolate the 'x' (by dividing both sides by 4).
* NOTE: Leave your answer as a fraction in lowest terms.

d) $4(x + 2) = 2x - 16$

Before moving the x's and numbers to opposite sides, remember to simplify the equation (e.g. use the distributive law to remove the bracket).

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Part B) Multiply by a common denominator before solving.

Solve the following equations:

a) $1\dfrac{2}{3}x = \dfrac{1}{2} + \dfrac{5}{6}x$ First change the mixed number to an improper fraction.

Next multiply both sides by the common denominator (6).

Next move the x's to one side (e.g. subtract 5x from both sides of the equation.)

Finally, isolate the 'x' (by dividing both sides by 5).
* NOTE: Leave your answer as a fraction in lowest terms.

Expectation #2: Model and solve problems using linear equations with rational coefficients.

For the problem below,
           1) first choose a variable and tell what it represents,
           2) write out an equation to model the problem,
           3) then solve it
           4) finally write out a sentence to answer the problem.

The cost of a frozen yoghurt dessert is $2.45 plus $0.62 per topping. How many toppings are included in a dessert that costs $5.55?

Step 1: Choose a variable (letter) to represent what you're trying to find.

_____ = # of toppings

Step 2: Use the variable you chose to write an equation which models the problem.

Step 3: Solve your equation.

Step 4: Write a sentence to answer the question asked in the problem.

* NOTE: It's always a good idea to check that your answer works in the original problem. (i.e. read the problem again and check that your answer makes sense)