

## Math 9A Journal Entries

### Learning Guide 8

**Expectation 1: Solve one-step linear equations with rational coefficients.**

Part A) Vocabulary: Use the Literacy Link on page 294 to help you define and give an example of the following :

Opposite operations (also known as Inverse operations) -

\_\_\_\_\_

*Two examples of opposite operations -*

\_\_\_\_\_

\_\_\_\_\_

Part B) Equation Solving: Fill in the blanks ...

1. To solve an equation, we need to isolate the \_\_\_\_\_ by applying the \_\_\_\_\_ operation to both sides of the equation. Remember that whatever you do to one side of an equation, you MUST do the same thing to the other side!

2. The opposite operation of multiplication is \_\_\_\_\_.

3. The opposite operation of division is \_\_\_\_\_.

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

a)  $5K = -15$

b)  $\frac{W}{14} = 3$

5. CHECK your solutions to the two questions above by using substitution.

a)

b)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Part C) Multiply by a common denominator before solving.

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

a)  $\frac{x}{2} = \frac{6}{4}$

Start by multiplying both sides by the common denominator of 4.

b)  $\frac{5}{6} = 3\frac{1}{3}x$

Start by changing the mixed number to an improper fraction.

Next multiply both sides by the common denominator.

2. CHECK your solutions to the two questions above by using substitution.

a)

b)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Part D) Solving one-step equations with the variable in the denominator

Note: When a variable is in the denominator you can either multiply by the common denominator (as in part C) or else you can cross-multiply.

1. Choose whichever method you prefer to solve the following equation.

a)  $\frac{61}{r} = 9$

b)  $-5 = \frac{6}{x}$

2. CHECK your solutions to the two questions above by using substitution.

a)

b)

**Expectation 2: Solve two-step linear equations with rational coefficients.**

Part A) Solving Two-Step Equations

Note: To isolate the variable in a two-step equation, use the reverse order of operations (ie reverse BEDMAS). That is, add or subtract first and then multiply or divide.

1. Solve by applying inverse operations (show your work by completing the steps below):

\*For help, see example 2 on page 308

$$\frac{a}{3} - 2 = 4$$

Step 1) Start by adding 2 to both sides.

Step 2) Multiply both sides by 3

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Part B) Solving Two-Step Equations with fractions:

Note: To solve two-step equations with fractions, multiply all terms by a common multiple of the denominators. This will get rid of the fractions so you will be able to work with integers instead.

1. Solve by applying inverse operations (show your work by completing the steps below):

\*\*\*For help, see the blue box on the top of page 310.

$$\frac{w}{5} - \frac{3}{2} = \frac{1}{10}$$

Start by multiplying all terms by 10

**Expectation 3: Solve multi-step linear equations with rational coefficients (using the distributive law).**

1. Go over example #1 a) on page 315 (Method 1 – Using the Distributive Property)
2. Solve the following equation, using the distributive property to remove the brackets first.

$$5(x - 6) = -12$$

3. CHECK your solution to the question above by using substitution.