

## Only to be used for arranged hours

Math 31

Activity # 3

### "Fractions In Expressions and Linear Equations"

Your Name: \_\_\_\_\_

1) In order to add the following fractions, what is the least common denominator, LCD ?

$$\frac{1}{2} + \frac{1}{4}$$

Answer: \_\_\_\_\_

2) Show how to convert each fraction to an equivalent fraction with the LCD, and then add the fractions.

3) Suppose a student says, "let's multiply each fraction by the LCD in order to clear the fractions of their denominators." Follow this instruction and then explain whether or not the result is reasonable.

4) For the algebraic expression,  $\frac{1}{2}x + \frac{1}{4}x$ , convert to equivalent fractions with common denominators and then combine the like terms.

5) Show how to multiply each term of the expression by the LCD. Do you obtain an equivalent result as in problem #4 ?

$$\frac{1}{2}x + \frac{1}{4}x$$

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6) To solve an equation involving fractions like,  $\frac{1}{2}x + \frac{1}{4}x = \frac{2}{3}$  one method is to first eliminate all fractions, in other words, clear all fractions of their denominators. The first step of this method is to determine the least common denominator. What is the least common denominator, LCD, for the equation,  $\frac{1}{2}x + \frac{1}{4}x = \frac{2}{3}$  ?

What is the least common denominator ? \_\_\_\_\_

Next, multiply both sides of the equation by the LCD, then apply the Distributive Property to simplify and solve.

$$\frac{1}{2}x + \frac{1}{4}x = \frac{2}{3}$$

Compare your solution with a group member.

## Inconsistent Equations and Identities with Fractions

7) Solve the following equation, if possible.

$$\frac{x}{3} + \frac{2}{5} = \frac{2x}{6} - \frac{1}{2}$$

What is the least common denominator ? \_\_\_\_\_

Multiply both sides of the equation by the LCD, then apply the Distributive Property to simplify and solve. All fractions should be cleared of their denominators.

Eventually, you obtain a statement that is a contradiction. What is the contradiction that you obtain ? \_\_\_\_\_

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This means that the original statement has \_\_\_\_\_ and the solution set is \_\_\_\_\_

8) Solve the following equation, if possible.

$$\frac{1}{4}x + 2 + \frac{1}{2}x = \frac{3}{4}x + 2$$

What is the least common denominator ? \_\_\_\_\_

Multiply both sides of the equation by the LCD then apply the Distributive Property to simplify and solve. All fractions should be cleared of their denominators.

The solution is \_\_\_\_\_ Solution set is \_\_\_\_\_

Remember: When adding or subtracting fractions, the final answer usually does have a common denominator.

When solving an equation with fractions, one method for solving involves eliminating all fractions, or clearing all fractions of their denominators.