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| *Addition and Subtraction of Rational Expressions*  **Handout-KEY** | **Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

**Objective: To study addition and subtraction of rational expressions.**

**Segment 1**: Adding and Subtracting Rational Expressions with the Same Denominators.

Finding the sum or difference of rational expressions is similar to finding the sum or difference of fractions.

To add or subtract rational expressions, add/subtract the numerators, and place it over the common denominator. Write the answer in simplest form.

Note: A rational expression is in simplest terms if the numerator and denominator do not have any common factors other than 1.

Example 1: Add or subtract the rational expressions.

(a) (b) (c)

Answer: 1 Answer: Answer:

Note: When adding or subtraction two rational expressions that have denominators that are opposites, multiply the numerator and denominator of one of the rational expressions by -1; one immediately obtains a common denominator.

**Segment 2**: Adding and Subtracting Rational Expressions with the Different Denominators.

To add or subtract rational expressions with different denominators, first rewrite each expression as an equivalent expression with a common denominator. Then add/subtract the numerators, and place it over the common denominator. Write the answer in simplest form.

**Recall**: To find the LCD, first factor each denominator completely. The LCD is the product of all unique factors each raised to the power equal to the greatest number of times that the factor appears in any one factorization.

Example 2: Add or subtract the rational expressions.

(a) (b)

Answer: Answer:

(c) (d)

Answer: Answer:

(e) (f)

Answer: Answer:

**SELF-REFLECTION ACTIVITY**

- Which segment of the adding and subtracting rational expressions was most challenging for you?

- What steps are you going to take to learn this subject?