

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

## NOTES: Section 11.6 Adding and Subtracting with Unlike Denominators

Goals: #1 - I can add and subtract rational expressions with unlike denominators.

*Homework: LCD Matching Worksheet & Section 11.6 Worksheet*



**Warm Up:**

1. Find the sum of the rational expression and simplify.

a.  $\frac{4x}{7x+2} + \frac{5x}{7x+2}$

b.  $\frac{-10}{x^2+x-30} + \frac{x^2-3x}{x^2+x-30}$

2. Find the difference of the rational expression and simplify.

a.  $\frac{y^2}{y^2-16} - \frac{y+12}{y^2-16}$

b.  $\frac{2m^2}{m^2-5m+6} - \frac{4m}{m^2-5m+6}$

**Exploration #1:** Work with a partner and add the following fractions.

1.  $\frac{3}{5} + \frac{1}{10}$

2.  $\frac{7}{10} + \frac{1}{3}$

3.  $\frac{1}{2} + \frac{1}{8}$

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**Notes:**

As with \_\_\_\_\_, to \_\_\_\_\_ or \_\_\_\_\_

rational expressions with \_\_\_\_\_ denominators, we need to first rewrite the expressions to have \_\_\_\_\_ denominators.

Then we can \_\_\_\_\_ or \_\_\_\_\_ the rational expressions.

**Example #1:** Find the least common denominator.

1.  $\frac{x}{x-5}, \frac{2x^3}{x+7}$

2.  $\frac{1}{36x}, \frac{3x+1}{9x^5}$

**You practice:** Find the least common denominator.

1.  $\frac{5x+9}{16x^3}, \frac{7}{24x^2}$

2.  $\frac{12}{x+1}, \frac{x}{x-1}$

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**Example #2:** Find the missing numerator.

1.  $\frac{2}{3y} = \frac{?}{15y}$

2.  $\frac{3x-7}{4x^2} = \frac{?}{36x^5}$

3.  $\frac{y-1}{y} = \frac{?}{13y^2}$

**Notes:**

We are ready to \_\_\_\_\_ or \_\_\_\_\_ rational expressions!

**Step 1:**

**Step 2:**

**Step 3:**

**Step 4:**

**Example #3:** Find the sum of the rational expression and simplify.

1.  $\frac{3}{15x^2} + \frac{1}{9x^3}$

2.  $\frac{x+2}{x-1} + \frac{12}{x+6}$

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**You practice:** Find the sum of the rational expression and simplify.

1.  $\frac{3}{12x^3} + \frac{x+1}{4x^3}$

2.  $\frac{x-3}{x+4} + \frac{6}{x-1}$

**Example #4:** Find the difference of the rational expression and simplify.

1.  $\frac{7}{6x} - \frac{x+1}{8x^2}$

2.  $\frac{x-5}{x+5} - \frac{x+2}{x-2}$

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**You practice:** Find the difference of the rational expression and simplify.

1.  $\frac{3 + 4x}{4x^3} - \frac{1}{10x^2}$

2.  $\frac{2x}{x - 1} - \frac{7x}{x + 4}$