

Section 6-2: Addition and Subtraction of Rational Expressions**Warm-up**

Add and Subtract the following fractions (remember to simplify):

1) $\frac{3}{4} + \frac{5}{4}$

2) $\frac{3}{4} - \frac{5}{4}$

3) $\frac{3}{4} + \frac{3}{8}$

4) $\frac{3}{4} - \frac{3}{8}$

THINGS TO CONSIDER:

- How is adding two fractions with the same denominator different than adding two fractions with different denominators?

Addition and Subtraction with Like Denominators:**➤ Theorem 6-1: Addition of Rational Expressions**

- For any rational expressions $\frac{a}{c}$ and $\frac{b}{c}$ for which c is nonzero,

EXAMPLE # 1: Add or Subtract the following...

a) $\frac{x-2}{2x^2+1} + \frac{3x+3}{2x^2+1}$

b) $\frac{3y-3}{y+2} - \frac{2y+4}{y+2}$

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Addition and Subtraction with Different Denominators:

- **VOCAB:** The Least Common Denominator (LCD) is the _____
_____.
- **VOCAB:** The Least Common Multiple (LCM) is the _____
_____.

Examples:

Find the LCM of 15 and 20

Add the following rational numbers...

$$\frac{1}{15} + \frac{1}{20} =$$

- To find the LCM of two or more algebraic expressions we must...
 - **Step 1:** _____
 - **Step 2:** _____
 - **Step 3:** _____

EXAMPLE #2: Find the LCM of the following algebraic expressions.

a) $x^2 - y^2$ and $x^3 + y^3$

b) $x^2 - 4$ and $x^2 + 5x + 6$

EXAMPLE #3: Add or Subtract the following

a) $\frac{3}{2x} + \frac{5}{x^2}$

b) $\frac{3y - 3}{y + 2} - \frac{2y + 4}{y - 2}$