

Lesson 4 Addition and Subtraction of Rational Expressions
(Monomial Denominators)

Part I – Common Denominators

Steps for Adding or Subtracting (Common Denominators):

- Add or Subtract the numerators, keeping the denominators the same
- State restrictions (set denominator equal to 0)

Examples

Add or Subtract

1.) $\frac{5}{a} + \frac{3}{a}$

2.) $\frac{3}{m-2} + \frac{2}{2-m}$

Part II – Different Denominators

Steps for Adding or Subtracting (Different Denominators):

- Factor all expressions
- Write each term with the lowest common denominator (LCD)
- Add or Subtract the numerators, keeping the denominators the same
- State restrictions (set denominator equal to 0)
- **Note:** the LCD is the product which contains each factor that occurs the greatest number of times in any denominator.

Examples

1. $\frac{2}{xy} + \frac{3}{x^2} + \frac{4}{yz}$

2. $\frac{3}{x} + \frac{6}{5x} - \frac{4}{2x}$

$$3. \frac{2a+1}{2a^2b} - \frac{b-3}{9ab^2}$$

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