

10-2: Adding and Subtracting Rational Expressions

Objectives:

- 1. I can simplify a rational expression**
- 2. I can add and subtract rational expressions.**

Adding Rational Numbers:

$$2 \cdot \frac{3}{5} + \frac{3}{10} =$$

$$\frac{6}{10} + \frac{3}{10} = \frac{9}{10}$$

$$\frac{-2}{3} + \frac{-5}{6}$$

$$7 \cdot \frac{1}{4} + \frac{9.4}{7.4} =$$

$$7 \cdot \frac{1}{4} + \frac{36}{28} = \frac{43}{28}$$

$$\frac{4}{7} + 2$$

Adding Rational Expressions:

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

Find a common denominator and then add

$$x \cdot \frac{2}{x-3} + \frac{5 \cdot (x-3)}{x \cdot (x-3)} = \frac{2x}{x(x-3)} + \frac{5(x-3)}{x(x-3)}$$

$$\frac{2x + 5(x-3)}{x(x-3)}$$

$x \neq 3, 0$

$$\frac{x(x-2)}{x+1} + \frac{5(x+1)}{x-2(x+1)}$$

$$\frac{x(x-2)}{(x-2)(x+1)} + \frac{5(x+1)}{(x-2)(x+1)} = \frac{x(x-2) + 5(x+1)}{(x-2)(x+1)}$$

$x \neq -1, 2$

Add the following rational expressions.
Identify any excluded values.

$$\frac{(x-1) \cdot 1}{(x-1)x-3} + \frac{2}{(x-3)\underline{(x-1)}}$$

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

Add the following rational expressions.
Identify any excluded values.

$$\frac{4}{x} + \frac{5x}{(x+5)}$$

Add the following rational expressions.
Identify any excluded values.

$$\frac{(x+6)5}{(x+6)(x+3)(x-1)} + \frac{4x(x-1)}{(x+3)(x+6)(x-1)}$$

Add the following rational expressions.
Identify any excluded values.

$$\frac{5}{(x+2)(x+1)} + \frac{(x+3)}{(x+2)}$$

Add the following rational expressions.
Identify any excluded values.

$$\frac{4}{(x+5)} + \frac{x}{(x+5)}$$

Subtracting Rationals

Subtract the Rational Expressions

$$\frac{1}{x-2} - \frac{2}{x}$$

$$\frac{x}{5} - \frac{3}{x+1}$$

subtract the following rational expressions.
Identify any excluded values.

$$\frac{3x}{x+5} - \frac{7}{(x+5)(x-2)}$$