

Warm-Up:

Simplify ~~(x-5)(x-2)~~

1) $\frac{x^2 - 7x + 10}{x^2 - 13x + 40}$

~~(x-8)(x-5)~~

$$\frac{x-2}{x-8}$$

Multiply ~~2(p-2)~~

2) $\frac{3p-6}{p^2-16} \cdot \frac{(p-4)}{4}$

~~(p+4)(p-4)~~ 4

$$\frac{(p-2)(p-4)}{4(p+4)}$$

Section 8-2: Adding and Subtracting Rational Expressions

Recall to add or subtract fractions, a common denominator is necessary.

The common denominator of a fraction is the Least Common Multiple (LCM) of the unlike denominators.

Examples:

1) Find the LCM of $15a^2bc^3$, $16b^5c^2$, and $20a^3c^6$.

$$15a^2bc^3 = 3 \cdot 5 \cdot a^2 \cdot b \cdot c^3$$

$$16b^5c^2 = 2^4 \cdot b^5 \cdot c^2$$

$$20a^3c^6 = 2^2 \cdot 5 \cdot a^3 \cdot c^6$$

$$LCD = 2^4 \cdot 3 \cdot 5 \cdot a^3 b^5 c^6$$

$$240a^3b^5c^6$$

2) Find the LCM of $x^3 - x^2 - 2x$ and $x^2 - 4x + 4$.

$$x(x^2 - x - 2) \quad (x-2)(x-2)$$

$$x(x-2)(x+1)$$

$$LCD: x(x-2)^2(x+1)$$

Examples:

3) Simplify $\frac{7a^2b}{7a^2b} \cdot \frac{5a^2}{6b} + \frac{9}{14a^2b^2} \cdot \frac{3}{3}$

$$LCD: 42a^2b^2$$

$$\frac{35a^4b}{42a^2b^2} + \frac{27}{42a^2b^2}$$

$$\frac{35a^2b^2 + 27}{42a^2b^2}$$

Examples:

4) Simplify.

$$\frac{2}{2} \frac{x+10}{3x-15} - \frac{3x+15}{6x-30}$$

$$\frac{2x+20}{6x-30} + \frac{-3x-15}{6x-30}$$

$$\frac{-x+5}{6x-30}$$

$-6(-x+5)$

$\frac{1}{-6}$

Examples:

5) Simplify.

$$\frac{\frac{1}{a} + \frac{1}{b}}{\frac{1}{b} - 1}$$

ab

ab

$$\frac{b+a}{a-ab}$$

Examples:

6) Find the slope of the line that passes through the following points.

P $(\frac{3}{k}, \frac{1}{3})$, Q $(\frac{1}{2}, \frac{2}{k})$

$$m = \frac{\frac{2}{k} - \frac{1}{3}}{\frac{1}{2} - \frac{3}{k}} \cdot \frac{6k}{6k}$$

$$m = \frac{2(6-k)}{3k-18} \cdot \frac{-3(-k+6)}$$

$$\frac{-2}{3}$$

Homework: pg. 454-456 #18-34 even, 40-46 even, 62