

Today's Learning Goal(s):

Date: Feb. 13/18
(Every lesson)

By the end of the class, I will be able to:

- a) add or subtract rational expressions and state any restrictions.

2.7 Adding and Subtracting Rational Expressions Day 1

Ex.1 Simplify. State any restrictions on the variables.

a) $\frac{5}{6} + \frac{3}{4}$ LCD = 12

$$= \frac{5}{6} \times \frac{2}{2} + \frac{3}{4} \times \frac{3}{3}$$

$$= \frac{10}{12} + \frac{9}{12}$$

$$= \frac{19}{12}$$

b) $\frac{1}{3x} + \frac{3}{4y}$ LCD = 12xy

$$= \frac{1}{3x} \times \frac{4y}{4y} + \frac{3}{4y} \times \frac{3x}{3x}$$

$$= \frac{4y + 9x}{12xy} \quad R: x \neq 0, y \neq 0$$

Don't forget restrictions!

c) $\frac{1}{6x^2} - \frac{3}{8y} + \frac{5}{4xy}$ LCD = 24x²y

$$= \frac{1}{6x^2} \cdot \frac{4y}{4y} - \frac{3}{8y} \cdot \frac{3x^2}{3x^2} + \frac{5}{4xy} \cdot \frac{6x}{6x}$$

$$= \frac{1(4y)}{24x^2y} - \frac{3(3x^2)}{24x^2y} + \frac{5(6x)}{24x^2y}$$

$$= \frac{4y - 9x^2 + 30x}{24x^2y}$$

R: $x \neq 0, y \neq 0$

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

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

$$= \frac{5x+15 - 3x+6}{(x-2)(x+3)}$$

$$= \frac{2x+21}{(x-2)(x+3)}$$

R: $x \neq 2, -3$

Simplify. State any restrictions on the variables.

$$e) \frac{5}{4a-2} - \frac{7}{6a-3} \quad \text{LCD } 6(2a-1)$$

$$= \frac{5}{2(2a-1)} - \frac{7}{3(2a-1)}$$

$$= \frac{5 \cdot 3}{6(2a-1)} - \frac{7 \cdot 2}{6(2a-1)}$$

$$= \frac{15 - 14}{6(2a-1)}$$

$$= \frac{1}{6(2a-1)}$$

$$R: 2a-1 \neq 0$$

$$2a \neq 1$$

$$a \neq \frac{1}{2}$$

Unreduced answer:

$$\frac{2a-1}{(4a-2)(6a-3)}$$

$$= \frac{\cancel{2a-1}}{2\cancel{(2a-1)}3(2a-1)}$$

$$= \frac{1}{6(2a-1)}$$

Are there any Homework Questions you would like to see on the board?

Last day's work: pp. 122-123 #(4-7)ac, 8, 9, 11 [13]

Today's Homework Practice includes:

p. 128 #1 - 5

6c
11

p. 122 6c)

$$\frac{2x^2 - x - 1}{x^2 - x - 6} \times \frac{6x^2 - 5x + 1}{8x^2 + 14x + 5}$$

$$\rightarrow 1x^2 - 5x + 6$$

$$= \frac{\cancel{(2x+1)}(x-1)}{(x+2)(x-3)} \times \frac{(3x-1)(\cancel{2x-1})}{(4x+5)\cancel{(2x+1)}}$$

$$= \frac{(x-1)(3x-1)(2x-1)}{(x+2)(x-3)(4x+5)}$$

$$R: x \neq -2, 3, -\frac{5}{4}, -\frac{1}{2}$$

11. Liz claims that if $x = y$, she can show that $x + y = 0$ by following these steps:

T

Since $x = y$,

$$x^2 = y^2 \quad \leftarrow \text{I squared both sides of the equation.}$$

$$\text{So } x^2 - y^2 = 0. \quad \leftarrow \text{I rearranged terms in the equation.}$$

$$\frac{x^2 - y^2}{x - y} = \frac{0}{x - y} \quad \leftarrow \text{I divided both sides by } x - y.$$

$$\frac{\overset{1}{(x-y)}(x+y)}{\underset{1}{x-y}} = \frac{0}{x-y} \quad \leftarrow \text{I factored and simplified.}$$

$$x + y = 0$$

Sarit says that's impossible because if $x = 1$, then $y = 1$, since $x = y$. Substituting into Liz's final equation, $x + y = 0$, gives $1 + 1 = 2$, not 0.

Explain the error in Liz's reasoning.

$\leftarrow x = y$
 $\therefore x - y = 0$
 div. by zero
 is
 undefined.