

### Assignments

- \* Adding and Subtracting riddle worksheet (18 points)
- \* Fix or finish previous assignments

### Warm-up

Simplify:

$$\frac{x^2 - 3x}{x^2 - 5x + 6} \cdot \frac{(x-2)^2}{2x}$$

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

## Adding and Subtracting Rational Expressions

### 11.6

Add or Subtract as indicated. Do not use a calculator.

1.  $\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$

2.  $\frac{2}{3} + \frac{4}{3} = \frac{6}{3} = 2$

3.  $\frac{2}{9} - \frac{5}{9}$   
 $= \frac{-3}{9} = -\frac{1}{3}$

#### Steps for Adding/Subtracting Rational Expressions with Like (Common) Denominators:

1. Add or subtract the numerators as indicated.
2. Write the result of step 1 over the common denominator.
3. Simplify the result by factoring (if needed) and dividing out any common factors.

Simplify each expression by adding or subtracting as indicated.

4.  $\frac{4}{3x} + \frac{5}{3x}$

$$\frac{39}{15x}$$

$$\frac{3}{x}$$

5.  $\frac{3}{2x} - \frac{7}{2x}$

$$\frac{-42}{2x}$$

$$-\frac{21}{x}$$

6.  $\frac{13x^2}{15x} - \frac{1x^2}{15x}$

$$\frac{4x^2}{5 \cdot 15x}$$

$$\frac{4x}{5}$$

7.  $\frac{2x}{x+3} + \frac{4}{x+3}$   
 $\frac{2x+4}{x+3}$   
 $\frac{2(x+2)}{x+3}$

8.  $\frac{x^2-25}{x+5} - \frac{25}{x+5}$   
 $\frac{x^2-25}{x+5}$   
 $\frac{(x+5)(x-5)}{(x+5)}$   
 $\frac{(x-5)}{1} = x-5$

9.  $\frac{8}{x} + \frac{x-8}{x}$   
 $\frac{8+x-8}{x}$   
 $\frac{x}{x} = 1$

10.  $\frac{3x+4}{x^2+2x} + \frac{2}{x^2+2x}$   
 $\frac{3x+4+2}{x^2+2x} = \frac{3x+6}{x^2+2x}$   
 $\frac{3(x+2)}{x(x+2)} = \frac{3}{x}$

11.  $\frac{2x-5}{x^2-6x-16} - \frac{x+3}{x^2-6x-16}$   
 $\frac{2x-5-x-3}{x^2-6x-16}$   
 $\frac{x-8}{x^2-6x-16} = \frac{(x-8)}{(x-8)(x+2)}$   
 $= \frac{1}{x+2}$

12.  $\frac{3x^2-3x+2x-2}{3x^2-x-2} - \frac{x-2}{3x^2-x-2}$   
 $\frac{4x-x+2}{3x^2-x-2} = \frac{3x+2}{3x^2-x-2}$   
 $= \frac{(3x+2)}{(x-1)(3x+2)} = \frac{1}{x-1}$

13.  $\frac{x^2+5}{x^2-9} + \frac{7x}{x^2-9} - \frac{2x+29}{x^2-9}$   
 $\frac{x^2+5+7x-2x-29}{x^2-9}$   
 $= \frac{x^2+5x-24}{x^2-9}$   
 $= \frac{(x+8)(x-3)}{(x+3)(x-3)} = \frac{x+8}{x+3}$

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