

Section 7.3: ADDING AND SUBTRACTING RATIONAL EXPRESSIONS WITH THE SAME DENOMINATOR

When you are done with your homework you should be able to...

- π Add rational expressions with the same denominator
- π Subtract rational expressions with the same denominator
- π Add and subtract rational expressions with opposite denominators

WARM-UP:

Simplify:

a. $\frac{b^2 - a^2}{a^2 - b^2}$

b. $\frac{x^2 - 2x + 1}{1 - x}$

ADDING RATIONAL EXPRESSIONS WITH COMMON DENOMINATORS

If _____ and _____ are _____ expressions, then

To _____ rational expressions with the _____,
 add _____ and place the _____ over the _____
 _____. If possible, _____ the result.

SUBTRACTING RATIONAL EXPRESSIONS WITH COMMON DENOMINATORS

If _____ and _____ are _____ expressions, then

To _____ rational expressions with the _____, subtract _____ and place the _____ over the _____. If possible, _____ the result.

Example 1: Add or subtract as indicated. Simplify the result, if possible.

a. $\frac{x}{15} + \frac{4x}{15}$

c. $\frac{x}{x-1} - \frac{1}{x-1}$

b. $\frac{x+4}{9} + \frac{2x-25}{9}$

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

$$e. \frac{x^3 - 3}{2x^4} - \frac{7x^3 - 3}{2x^4}$$

$$f. \frac{x^2 + 9x}{4x^2 - 11x - 3} + \frac{3x - 5x^2}{4x^2 - 11x - 3}$$

$$g. \frac{3y^2 - 2}{3y^2 + 10y - 8} - \frac{y + 10}{3y^2 + 10y - 8} - \frac{y^2 - 6y}{3y^2 + 10y - 8}$$

ADDING AND SUBTRACTING RATIONAL EXPRESSIONS WITH OPPOSITE DENOMINATORS

When one denominator is the _____, or _____
_____, of the other, first _____ either rational
expression by _____ to obtain a _____.

Example 2: Add or subtract as indicated. Simplify the result, if possible.

a. $\frac{6x+7}{x-6} + \frac{3x}{6-x}$

c. $\frac{4-x}{x-9} - \frac{3x-8}{9-x}$

b. $\frac{x^2}{x-3} + \frac{9}{3-x}$

d. $\frac{2x+3}{x^2-x-30} + \frac{x-2}{30+x-x^2}$