

M117 SECTION 7.4 ADD & SUBTRACT RATIONAL EXPRESSIONS -- UNLIKE DENOMINATORS

We saw in the previous section that we will need *like or common denominators* if we are adding or subtracting rational expressions. So first let us look at how to find the LCD.

MONOMIAL DENOMINATORS

1. Find the LCD of the coefficients.
2. The LCD of the variable portion is found by using each different variable that appears in either denominator to its highest power.
3. Put (1) and (2) together.
4. Rewrite each fraction using this LCD

$$\frac{y}{12x^5} \text{ and } \frac{5}{9x^2}$$

$$\frac{8}{10mn} \text{ and } \frac{7}{15n^2}$$

POLYNOMIAL DENOMINATORS

1. Factor each denominator.
2. The LCD is found by using each different factor that appears in either denominator to its highest power.
3. Rewrite each fraction using this LCD

$$\frac{y}{3y+6} \text{ and } \frac{5}{4y+8}$$

$$\frac{3}{m^2+2m} \text{ and } \frac{7}{m^2-3m-10}$$

To Add or Subtract Rational Expressions:

1. Make sure there is a **COMMON DENOMINATOR**.
2. Write a **SINGLE FRACTION** - use () with subtraction!!!!
3. Simplify the **NUMERATOR**.
4. Try to **REDUCE**.

***CSNR** → "Calculus Students Never Relax"*

$$\frac{2x}{9y^3} + \frac{3}{4xy}$$

$$\frac{x+5}{2x} - \frac{4x-1}{3x^2}$$

$$\frac{x-1}{x^2+4x} - \frac{3x+1}{x^2-16}$$

$$\frac{x}{x+2} - \frac{10}{x^2 - x - 6}$$

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

YOU TRY:

$$\frac{5}{6x^2y} + \frac{3}{8xy^3}$$

$$\frac{x}{x^2 - 16} - \frac{8}{x^2 + 5x + 4}$$