7.2 Addition and Subtraction of Rational Expressions

To **add** or **subtract** rational expressions, find the **Least Common Denominator - LCD** (Multiple - LCM) first:

- factor completely each denominator,
- take each factor the greatest number of times that appears in any one factorization and multiply it.

Example 1: Find LCD for the following expressions:

a) $12x^5y^3, \quad 18xy^4$

b) $2y^2 - 6y, \quad 5y^2 - 45$

c) $6xy, \quad 4(x - x^2), \quad 5y^2(x - 1)^2$

Example 2: Perform operations.

a) $\frac{5}{12} - \frac{1}{30} + \frac{3}{20} =$

b) $\frac{y}{y-1} - \frac{y+1}{y-1} =$

c) $\frac{2x-3}{x^2-1} - \frac{4-x}{1-x^2} =$

d) $\frac{2}{x+6} - \frac{x+2}{x^2-36} + \frac{5}{x-6} =$

e) $\frac{3x}{x^2-7x+10} - \frac{3}{x^2-8x+15} =$

f) $\frac{4}{x+3} + \frac{2x}{x^2-3x+9} - \frac{5}{x^3+27} =$