12.6: Add and Subtract Rational Expressions:

Goals: *Add/Subtract rational expressions with a common denominator
   *Find the least common denominator of rational expressions
   *Add/subtract rational expressions with unlike denominators

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Add/subtract rational expressions with the same denominator:

Ex: $\dfrac{5}{3x} + \dfrac{7}{3x}$

Ex: $\dfrac{3x}{x-1} - \dfrac{x+5}{x-1}$

Ex: $\dfrac{2}{y} + \dfrac{y+1}{y}$

Ex: $\dfrac{4x+1}{2x-1} - \dfrac{2x-3}{2x-1}$

Ex: $\dfrac{2x}{x+2} + \dfrac{x+1}{x+2}$

Ex: $\dfrac{4x+1}{5x} - \dfrac{x+2}{5x}$

Find least common denominator:

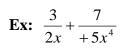****HINT:** If you had $\dfrac{2}{721} + \dfrac{3}{648}$ what would be the quickest way to find a common denominator?

Ex: $\dfrac{1}{4r}$ and $\dfrac{r+3}{10r^2}$

Ex: $\dfrac{5}{(x-3)^2}$ and $\dfrac{3x+4}{x^2-x-6}$

Ex: $\dfrac{3}{c-2}$ and $\dfrac{c+8}{2c+7}$

Add expressions with different denominators:

Ex: $\dfrac{9}{8x^2} + \dfrac{5}{12x^3}$

Ex: $\dfrac{10}{3x} - \dfrac{7x}{x+2}$

Ex: $\dfrac{6}{18x} + \dfrac{4}{6x^2}$

Ex: $\dfrac{5}{2x} - \dfrac{3x}{x-1}$

Ex: $\dfrac{3}{2x} + \dfrac{7}{+5x^4}$

Ex: $\dfrac{y}{y+1} + \dfrac{3}{y+2}$

Ex: $\dfrac{x+4}{x^2+3x-10}-\dfrac{x-1}{x^2+2x-8}$

Ex: $\dfrac{2z-1}{z^2+2z-8}-\dfrac{z+1}{z^2-4}$

Ex: $\dfrac{x+3}{x^2-8x+15}-\dfrac{x+6}{x^2-x-20}$