

# Adding & Subtracting Rational Expressions Part 2

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PRE-CALCULUS 11  
RATIONAL EXPRESSIONS  
ADDING & SUBTRACTING RATIONAL EXPRESSIONS PART 2

A. Adding and Subtracting Rational Expressions with Polynomial Denominators

1) State the non-permissible values and simplify each expression.

a)  $\frac{4n^{(n-5)}}{(n-5)n+4} + \frac{3n^{(n+4)}}{n-5(n+4)}$       $n \neq -4, 5$

$$\frac{4n^2 - 20n}{(n+4)(n-5)} + \frac{3n^2 + 12n}{(n+4)(n-5)}$$

$$\frac{7n^2 - 8n}{(n+4)(n-5)} \quad \text{or} \quad \frac{n(7n - 8)}{(n+4)(n-5)}$$

b)  $\frac{1}{x^2 - 36} - \frac{1}{x(x+6)}$       $x \neq -6, 6, 0$

$$\frac{1 \cdot x}{(x+6)(x-6)x} - \frac{1(x-6)}{x(x+6)(x-6)}$$

$$\frac{x}{x(x+6)(x-6)} - \frac{x-6}{x(x+6)(x-6)}$$

$$\frac{x}{x(x+6)(x-6)} + \frac{-x+6}{x(x+6)(x-6)}$$

$$= \frac{6}{x(x+6)(x-6)}$$

$$\begin{array}{r} 25 \\ 5 \times 5 \\ 16 \end{array}$$

$$c) \frac{4}{x^2+10x+25} + \frac{5}{x^2-25} \quad x \neq -5, 5$$

$$\frac{4(x-5)}{(x+5)(x+5)(x-5)} + \frac{5(x+5)}{(x+5)(x-5)(x+5)}$$

$$\frac{4x-20}{(x+5)(x+5)(x-5)} + \frac{5x+25}{(x+5)(x+5)(x-5)}$$

$$= \frac{9x+5}{(x+5)(x+5)(x-5)}$$

$$\begin{array}{r} 6 \\ -3 \times -2 \\ -5 \end{array}$$

$$d) \frac{n-2}{n^2-5n+6} - \frac{n+4}{n^2-11n+30} \quad n \neq 3, 2, 5, 6$$

$$\frac{\cancel{n-2}}{(n-3)(\cancel{n-2})} + \frac{-n-4}{(n-5)(n-6)}$$

$$\frac{1(n-5)(n-6)}{(n-3)(n-5)(n-6)} + \frac{(-n-4)(n-3)}{(n-5)(n-6)(n-3)}$$

$$\frac{n^2-6n-5n+30}{(n-3)(n-5)(n-6)} + \frac{-n^2+3n-4n+12}{(n-3)(n-5)(n-6)}$$

$$= \frac{-12n+42}{(n-3)(n-5)(n-6)} \quad \text{or} \quad \frac{-6(2n-7)}{(n-3)(n-5)(n-6)}$$

Assignment: Pg. 566 #3, 5, 6, 7, 10