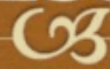


ADDING AND
SUBTRACTING
RATIONAL
EXPRESSIONS



SECTION 11.6B

How to add/subtract



1. Find a common denominator
2. Multiply the fractions by the missing term to get the bottoms the same
3. Add/subtract
4. Simplify

$$x^2 - 8x - 70$$

Examples



$$1. \frac{5x}{(x-2)(x-3)} + \frac{7}{(x-3)(x-2)}$$

$$\frac{5x^2 - 15x}{(x-3)(x-2)} + \frac{7x - 14}{(x-3)(x-2)}$$

$$\boxed{\frac{5x^2 - 8x - 14}{(x-3)(x-2)}}$$

$$2. \frac{2x}{(x+1)(x-3)} - \frac{4}{(x-3)(x+1)}$$

$$\frac{2x^2 - 6x}{(x+1)(x-3)} + \frac{-4x - 4}{(x+1)(x-3)}$$

$$\frac{2x^2 - 10x - 4}{(x+1)(x-3)}$$

$$\boxed{\frac{2(x^2 - 5x - 2)}{(x+1)(x-3)}}$$

Examples



$$x^2 - 2x - 168$$

$$(x - \frac{14}{2})(x + \frac{12}{2})$$

$$3. \frac{x \cdot 4x}{x(x+4)} + \frac{5x^2}{x^2 + 4x}$$

$$x(x+4) \quad x(x+4)$$

$$\frac{4x^2}{x(x+4)} + \frac{5x^2}{x(x+4)}$$

$$\frac{9x^2}{x(x+4)} = \boxed{\frac{9x}{(x+4)}}$$

$$4. \frac{6x^2}{x^2 - 36} + \frac{(x+4)(x-6)}{(x+6)(x-6)}$$

$$(x-6)(x+6) \quad (x-6)(x+6)$$

$$\frac{6x^2}{(x-6)(x+6)} + \frac{x^2 - 6x + 4x - 24}{(x+6)(x-6)}$$

$$\frac{7x^2 - 2x - 24}{(x-6)(x+6)} = \boxed{\frac{(x-2)(7x+12)}{(x-6)(x+6)}}$$

$$x^2 + 3x + 15$$

Examples

$$x^2 + 5x - 84$$

$$(x+12)(x-7)$$

$$\begin{matrix} -4 & -4 \end{matrix}$$

5. $\frac{3x}{(x+1)(x+2)} + \frac{5}{(x+2)(x+1)}$

6. $\frac{(x+3)(x+7)}{(x-5)(x+1)(x+7)} + \frac{-5x(x+1)}{(x+7)(x-5)(x+1)}$

$$\frac{3x^2 + 3x}{(x+1)(x+2)} + \frac{5}{(x+1)(x+2)}$$

$$\boxed{\frac{3x^2 + 3x + 5}{(x+1)(x+2)}}$$

$$\frac{x^2 + 7x + 3x + 21}{(x-5)(x+1)(x+7)} + \frac{-5x^2 - 5x}{(x+7)(x-5)(x+1)}$$

$$\frac{-4x^2 + 5x + 21}{(x-5)(x+1)(x+7)} = \boxed{\frac{(x-3)(-4x-7)}{(x-5)(x+1)(x+7)}}$$

Homework



Pg 679 # 20-29