

Winston 5/16/2018

Add & Subtract with Like Denominators

$$\frac{x^2}{x+5} + \frac{7x+10}{x+5} =$$

*denominators need to be the same in order to add/subtract.

$$\frac{x^2 + 7x + 10}{x+5} \xrightarrow{5 \times 2} \frac{\cancel{(x+5)}(x+2)}{\cancel{(x+5)}} = \boxed{x+2}$$

$$\frac{x^2 + 3x - 2}{(x+5)(x-2)} + \frac{4x + 12}{(x+5)(x-2)} =$$

Combine like terms (x's & constants)

$$\frac{x^2 + 7x + 10}{(x+5)(x-2)}$$

$$5 \times 2$$

$$\frac{\cancel{(x+5)}(x+2)}{\cancel{(x+5)}(x-2)} = \boxed{\frac{(x+2)}{(x-2)}}$$

* For subtraction:

$$\frac{x^2}{x-4} - \frac{9x-20}{x-4}$$

distribute the negative & change signs of 2nd rational

$$\frac{x^2 - 9x + 20}{x-4}$$

$$-5 \times -4$$

$$\frac{(x-5)\cancel{(x-4)}}{\cancel{(x-4)}} = \boxed{x-5}$$

$$\frac{x^2 - 2x + 3}{x^2 + 7x + 12} - \frac{x^2 - 4x - 5}{x^2 + 7x + 12}$$

$$\frac{\cancel{x}(-2x+3) - \cancel{x}(+4x+5)}{x^2 + 7x + 12} =$$

$$\frac{2x + 8}{x^2 + 7x + 12} = \frac{2\cancel{(x+4)}}{\cancel{(x+4)}(x+3)} = \boxed{\frac{2}{x+3}}$$

$$4 \times 3$$