

Addition and Subtraction of Rational expressions.

$$\frac{P}{Q} \pm \frac{S}{T} = \frac{P \times T}{Q \times T} \pm \frac{S \times Q}{T \times Q} = \frac{P \times T \pm S \times Q}{Q \times T}$$

$$\boxed{\frac{P}{Q} \begin{array}{c} \xrightarrow{+} S \\ \xrightarrow{-} T \end{array} = \frac{P \cdot T \pm Q \cdot S}{Q \cdot T}}$$

Ex : $\frac{2x-1}{x+1} - 7$

$$= \frac{2x-1}{x+1} \begin{array}{c} \xrightarrow{-} 7 \\ \xrightarrow{+} 1 \end{array}$$

$$= \frac{(2x-1) \times 1 - 7(x+1)}{(x+1)(1)}$$

$$= \frac{-5x-8}{x+1}$$

Ex $\frac{1}{x+2} + \frac{1}{x-2}$

$$= \frac{1 \times (x-2) + (x+2) \times (1)}{(x+2)(x-2)}$$

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

Ex $\frac{4}{x} + \frac{1}{x-2} - \frac{3}{x^2-2x}$

$$= \frac{4}{x} \begin{array}{c} \xrightarrow{+} 1 \\ \xrightarrow{-} x-2 \end{array} - \frac{3}{x(x-2)}$$

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

$$= \frac{4x-8+x-3}{x(x-2)} = \frac{5x-11}{x(x-2)}$$