

multiplication et division d'expressions rationnelles.

$$\frac{P}{Q} \cdot \frac{S}{T} = \frac{P \cdot S}{Q \cdot T}$$

$$\frac{\frac{P}{Q}}{\frac{S}{T}} = \frac{P}{Q} \cdot \frac{T}{S} = \frac{P \cdot T}{Q \cdot S}$$

Ex :

$$\frac{\frac{3}{x^2+x-30}}{\frac{4}{x^2-7x+10}} = \frac{3}{x^2+x-30} \times \frac{(x^2-7x+10)}{4} = \frac{3(x^2-7x+10)}{4(x^2+x-30)}$$

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

Ex :

$$\frac{x^2+6x+9}{x^2-9} \cdot \frac{x+3}{2x+6} = \frac{(x^2+6x+9) \cdot (x+3)}{(x^2-9)(2x+6)}$$

$$= \frac{(x+3)^2 \cdot (\cancel{x+3})}{(\cancel{x+3})(x-3) 2(\cancel{x+3})} = \frac{x+3}{2(x-3)}$$

Ex :

$$\frac{x^2+x-30}{x^2+6x+9} \cdot \frac{x^2-9}{x^2-7x+10} = \frac{(\cancel{x-5})(x+6)}{(x+3)(\cancel{x+3})} \cdot \frac{(\cancel{x+3})(x-3)}{(\cancel{x-5})(x-2)} = \frac{(x+6)(x-3)}{(x+3)(x-2)}$$

* $x^2 - 7x + 10 = 0$

$$\Delta = (-7)^2 - 4(1)(10) = 49 - 40 = 9 > 0$$

$$x_1 = \frac{7+3}{2} = \frac{10}{2} = 5$$

$$x_2 = \frac{7-3}{2} = \frac{4}{2} = 2$$

* $x^2 + x - 30 = 0$

$$\Delta = 1^2 - 4(-30) = 121 = 11^2$$

$$x_1 = \frac{-1+11}{2} = \frac{10}{2} = 5$$

$$x_2 = \frac{-1-11}{2} = \frac{-12}{2} = -6$$