

Multiplikation och division rationella uttryck

Regler för multiplikation och division av bråk

$$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$$

$$\frac{\frac{a}{b}}{\frac{c}{d}} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$$

Ex, Förenkla uttrycken

$$a) \frac{2}{3x} \cdot \frac{x+1}{x-1} = \frac{2x+2}{3x^2-3x}$$

$$b) \frac{\frac{x^7}{x+1}}{\frac{x}{1}} = \frac{x^7}{x+1} \cdot \frac{1}{x} = \frac{x^6}{x+1}$$

$$c) \frac{\frac{y^2-9}{2x+2}}{\frac{y+3}{x+1}} = \frac{y-9}{2(x+1)} \cdot \frac{x+1}{y+3} = \frac{(y-3)(y+3)}{2(y+3)} = \frac{y-3}{2}$$

$$d) \left(\frac{x+1}{x-1} \right)^{-2} = \frac{1}{\left(\frac{x+1}{x-1} \right)^2} = \frac{1}{\frac{x^2+2x+1}{x^2-2x+1}} = \frac{1}{1} \cdot \frac{x^2-2x+1}{x^2+2x+1} = \frac{x^2-2x+1}{x^2+2x+1}$$

$$e) \frac{\frac{2}{a+b}}{\frac{1}{a} + \frac{1}{b}} = \frac{\frac{2}{a+b}}{\frac{b}{ab} + \frac{a}{ab}} = \frac{\frac{2}{a+b}}{\frac{a+b}{ab}} = \frac{2}{a+b} \cdot \frac{ab}{a+b} = \frac{2ab}{a^2+2ab+b^2} = \frac{2ab}{(a+b)^2}$$