

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

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

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

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

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

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

$$= \frac{2ab}{a^2} + \frac{2ab}{2ab} + \frac{2ab}{b^2} = \frac{2b}{a} + 1 + \frac{2a}{b}$$