

Mathe Kapitel 3 Algebra in Q Ind. JB 5 - Lösung

$$1 \ a) \left(\frac{a-b}{1(x+y)} - \frac{3(a-b)}{2(x+y)} \right) \cdot \left(\frac{x+y}{a-b} - \frac{2(x+y)}{3(a-b)} \right)$$

$$= \frac{a-b - 3(a-b)}{6(x+y)} \cdot \frac{3(x+y) - 2(x+y)}{3(a-b)} = \frac{-2(a-b) \cdot (x+y)}{6(x+y) \cdot 3(a-b)} = \underline{\underline{-\frac{4}{9}}}$$

$$b) \frac{5x-4y}{8x-20y} - \frac{3a+c}{2a+2c} + \frac{14ax-52ay-22cy+2cx}{8(2ax+2cx-5ay-5cy)} =$$

$$\frac{2(5x-4y)(a+c) - (3a+c)(8x-20y) + 14ax-52ay-22cy+2cx}{16ax+16cx-40ay-40cy} + \frac{14ax-52ay-22cy+2cx}{16ax+16cx-40ay-40cy}$$

$$\frac{10ax+10cx-8ay-8cy-24ax+60ay-8cx+20cy+14ax-52ay-22cy+2cx}{(8x-20y)(2a+2c)}$$

$$\frac{4cx-10cy}{8(2x-5y)(a+c)} = \frac{2c(2x-5y)}{8(2x-5y)(a+c)} = \underline{\underline{\frac{c}{4(a+c)}}}$$

$$2 \ a) \left(\frac{2m-3n}{3r} - \frac{m+4n}{2t} \right) \cdot \left(\frac{4t-3r}{6n} - \frac{t+2r}{n} \right) = \frac{4mt-3nt-3mr-12nr}{6rt} \rightarrow$$

$$\rightarrow \frac{4mt-3mr-6nt-12nr}{6mn} = \frac{(4mt-3mr-3nt-12nr) \cdot mn}{6rt(4mt-3mr-6nt-12nr)} = \underline{\underline{\frac{mn}{rt}}}$$

$$b) \frac{5n-15m}{105abc} \cdot \frac{3x+6y}{6a} = \frac{84ab}{nx+2ny-3mx-6my} =$$

$$\frac{5(n-3m)}{21abc} \cdot \frac{3(x+2y)}{6a} = \frac{84ab}{n(x+2y)-3m(x+2y)} = \frac{(n-3m)(x+2y) \cdot 2}{c \cdot a (n-3m)(x+2y)} = \underline{\underline{\frac{2}{ac}}}$$

$$3 \ a) \frac{a}{a+b} + \frac{b}{a-b} = \frac{a(a-b) + b(a+b)}{(a+b)(a-b)} = \frac{a^2 - ab + ab - b^2}{a^2 - b^2} = \frac{a^2 + b^2}{a^2 - b^2}$$

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

$$b) \frac{4a-5b}{5x} - \frac{2a-3b}{3y} = \frac{z: (4a-5b)3y - (2a-3b)5x}{15xy} = \frac{12ay-15by-10ax+15bx}{15xy}$$

$$\frac{12y-10x}{15b} - \frac{y-x}{a} = \frac{N: (12y-10x)a - (y-x)15b}{15ab} = \frac{12ay-10ax-15by+15bx}{15ab}$$

$$= \frac{(12ay-15by-10ax+15bx) \cdot 15ab}{15xy(12ay-10ax-15by+15bx)} = \underline{\underline{\frac{ab}{xy}}}$$

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$$\begin{aligned}
 & \left(\frac{5b}{3} - \frac{175mxy}{36acd} + \frac{12abcd}{5xy} - 7mn \right) : \left(\frac{3ab}{5xy} - \frac{7mn}{4cd} \right) = \\
 & \frac{(300abcdxy - 875m^2xy^2 + 432a^2bcd^2 - 1260acd^2mxy)}{180acdxy} : \frac{(12abcd - 35m^2xy)}{20cdxy} = \\
 & \frac{12abcd(25xy + 36acd) - 35m^2xy(25xy + 36acd)}{180acdxy(12abcd - 35m^2xy)} = \\
 & = \frac{(12abcd - 35m^2xy)(25xy + 36acd) \cdot \overset{1}{20cdxy}}{\underset{9}{180acdxy}(12abcd - 35m^2xy)} = \frac{25xy + 36acd}{\underline{\underline{9a}}}
 \end{aligned}$$

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35 Lernende

Klassenchef: jeder Lernende \rightarrow 35 Mögl.

Pro Klassenchef: 34 mögliche Stv.

$$\Rightarrow 35 \cdot 34 = \underline{\underline{1190}} \text{ Möglichkeiten}$$