

AB-Übungsaufgaben zu Bruchtermen

$$17a) \frac{4}{9x} + \frac{2}{9x} = \frac{6}{9x}$$

$$b) \frac{2}{x} - \frac{3}{x} = -\frac{1}{x}$$

$$c) \frac{4}{x} + \frac{2}{3x} = \frac{12}{3x} + \frac{2}{3x} = \frac{14}{3x}$$

$$d) \frac{5}{x} \cdot \frac{(x+1)}{15} = \frac{5(x+1)}{15x} = \frac{x+1}{3x}$$

$$e) \frac{3}{x+1} : \frac{6}{2+2x} = \frac{3}{x+1} \cdot \frac{2(1+x)}{6} = \frac{3 \cdot 2 \cdot (1+x)}{(x+1) \cdot 6} = 1$$

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

$$= \frac{4}{x-1} - \frac{2}{x-1} - \frac{2}{x-1} = 0$$

$$g) \frac{x+1}{x+2} \cdot 2 + \frac{3x+1}{2+x} = \frac{2x+2}{x+2} + \frac{3x+1}{2+x} = \frac{2x+2+3x+1}{2+x} = \frac{5x+3}{2+x}$$

$$h) 2 - \frac{2}{x+2} = \frac{2 \cdot (x+2)}{(x+2)} - \frac{2}{x+2} = \frac{2x+4-2}{x+2} = \frac{2x+2}{x+2}$$

$$i) 4 : \frac{4x-16}{4+x} = 4 \cdot \frac{4+x}{4x-16} = \frac{4 \cdot (4+x)}{4(x-4)} = \frac{x+4}{x-4}$$

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

$$= \frac{-6-2x+x^2-x-(3x-3+x^2-x)}{(3+x)(x-1)} = \frac{x^2-3x-6-x^2-2x+3}{(3+x)(x-1)}$$

$$= \frac{-5x-3}{(3+x)(x-1)} = \frac{-1 \cdot (5x+3)}{(3+x) \cdot (-1) \cdot (-x+1)} = \frac{5x+3}{(3+x)(1-x)}$$

$$19a) \frac{u}{v} \cdot u \cdot v = \frac{u^2 v}{v} = u^2 v$$

$$b) \frac{x+y}{2x} : \frac{x+y}{3x} = \frac{x+y}{2x} \cdot \frac{3x}{x+y} = \frac{3}{2} = 1,5$$

$$c) 4ax : \frac{6a^2}{5x} = \frac{4ax}{1} \cdot \frac{5x}{6a^2} = \frac{20ax^2}{6a^2} = \frac{10x^2}{3a}$$

$$d) \frac{4x-3y}{x-2y} : \frac{6y-8x}{y-2x} = \frac{4x-3y}{x-2y} \cdot \frac{y-2x}{-2(3y+4x)} =$$
$$= \frac{(4x-3y) \cdot (y-2x)}{(x-2y) \cdot (-2) \cdot (4x-3y)} = \frac{y-2x}{-2 \cdot (x-2y)} = \frac{y-2x}{4y-2x}$$

$$e) \frac{4x^2}{7y} : \frac{6x}{35y^2} = \frac{4x^2}{7y} \cdot \frac{35y^2}{6x} = \frac{140x^2 y^2}{42xy} = \frac{10xy}{3}$$

$$f) \frac{2x-1}{2y} : \frac{4y}{x} = \frac{2x-1}{2y} \cdot \frac{x}{4y} = \frac{(2x-1) \cdot x}{8y^2}$$

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

$$h) \frac{x+y}{2x} : (2x+2y) = \frac{x+y}{2x} \cdot \frac{1}{2(x+y)} = \frac{x+y}{4x(x+y)} = \frac{1}{4x}$$