

AB 'Addition und Subtraktion von Bruchtermen'

1 a) $p + \frac{9-p}{2}$ b) $\frac{x-y}{3x} - 1$ c) $2 - \frac{k^2 - k + 1}{k^2}$

2 a) $\frac{2a}{a+b} + 1$ b) $4 - \frac{u-v}{u+v}$ c) $\frac{z^2}{z+1} - z$

3 a) $3 - \frac{m}{m-n}$ b) $\frac{q}{q+1} - 1$ c) $e - \frac{e^2 - 2}{e - 2}$

d) $1 + \frac{z}{1-z}, 1 + z + \frac{z^2}{1-z}, 1 + z + z^2 + \frac{z^3}{1-z}$

4 a) $\frac{1}{a+b} + \frac{1}{c}$ b) $\frac{8}{n+5} - \frac{n+2}{n}$ c) $\frac{x+y}{x-y} - \frac{x-y}{x+y}$

5 a) $\frac{m}{m-1} - \frac{m-1}{m+2}$ b) $\frac{2r}{s} - \frac{r+3}{r+s+1}$ c) $\frac{w-4}{w-2} + \frac{w+6}{w+3}$

6 a) $\frac{c}{c+d} - \frac{c-d}{2(c+d)}$ b) $\frac{4}{z-1} + \frac{z}{z^2-1}$

c) $\frac{3u}{u^2 + 2uv + v^2} - \frac{1}{u+v}$ d) $\frac{a+2b+t}{4at+8bt} - \frac{1}{4t}$

7 a) $\frac{x-y}{15x+10y} + \frac{x+y}{3x+2y}$ b) $\frac{8p}{4p^2-4p+1} - \frac{3}{2p-1}$

c) $\frac{r+2}{5r^2} - \frac{4r+4}{5r^3+10r^2}$ d) $\frac{1}{q-1} - \frac{q^2+2}{q^3-1}$

8 a) $\frac{c}{c-d} - \frac{2cd}{c^2-d^2} - \frac{d}{c+d}$ b) $\frac{1}{a-2} + \frac{1}{a+5} - \frac{2a+3}{a^2+3a-10}$

9 a) $\frac{z}{z-5} - \frac{5}{z+3} - \frac{40}{z^2-2z-15}$ b) $\frac{n}{n+1} - \frac{2n+1}{n-1} + \frac{n^2+5n}{n^2-1}$

10 a) $\frac{a-b}{4a+4b} + \frac{a+4b}{6a+6b}$ b) $\frac{t+7}{3t-6} - \frac{t+4}{t^2-2t}$

c) $\frac{u}{uv+v^2} - \frac{v}{u^2+uv}$ d) $\frac{c}{c^2-8c+16} + \frac{2}{c^2-6c+8}$

11 a) $\frac{1}{rx+ry} + \frac{1}{sx+sy}$ b) $\frac{a}{a^2-b^2} + \frac{b}{(a-b)^2}$

c) $\frac{z+9}{z^2-1} - \frac{z+5}{z^2+z}$ d) $\frac{5}{n^2+n-6} - \frac{3}{n^2-n-2}$



$$12 \text{ a) } \frac{7}{e-1} + \frac{6}{1-e}$$

$$\text{c) } \frac{r-4}{5r+5} + \frac{2}{1-r^2}$$

$$13 \text{ a) } \frac{a-b}{c-d} - \frac{a+b}{d-c}$$

$$\text{c) } \frac{8s}{s^2-4} + \frac{2+s}{2-s}$$

$$14 \text{ a) } \frac{2n-11}{3n-5} - \frac{4n+15}{n+7} + 1$$

$$15 \text{ a) } \frac{2r-19}{3r-7} - \frac{5r}{6r-8} - \frac{1}{2}$$

$$16 \text{ a) } \frac{5}{4x-8y} - \frac{3}{10y-5x} - \frac{11}{6x-12y}$$

$$17 \text{ a) } \frac{k+2}{6k-15} + \frac{8k+1}{8k-20} + \frac{k+11}{10-4k}$$

$$18 \text{ a) } \frac{2x-1}{x-3} - \frac{2x(x+2)}{x^2-9} - \frac{2}{3x}$$

$$19 \text{ a) } \frac{2u-v}{2u-2v} - \frac{u-v}{3u+3v} - \frac{v(3v-u)}{3v^2-3u^2}$$

$$20 \frac{a}{(a-b)(a-c)} + \frac{b}{(b-c)(b-a)} + \frac{c}{(c-a)(c-b)}$$

$$21 \frac{x^4+36x^2-32}{x^4-8x^2+16} - \frac{16x}{x^3+2x^2-4x-8} - \frac{16x}{x^3-2x^2-4x+8} - 1$$

$$22 \frac{a^2+3a+5}{a^4-a^3-31a^2+25a+150} - \frac{a+2}{a^3-3a^2-25a+75} \\ + \frac{a-3}{a^3+2a^2-25a-50} - \frac{a-5}{a^3+4a^2-11a-30}$$

$$23 \frac{6-x}{x^4+2x^3-13x^2-14x+24} + \frac{1}{x^3-2x^2-5x+6} + \frac{1}{x^2+x-2} - \frac{1}{x^2-4x+3}$$

$$\text{b) } \frac{5}{3h-3} - \frac{4}{2-2h}$$

$$\text{d) } \frac{u}{u-v} - \frac{4uv}{u^2-v^2} - \frac{v}{v-u}$$

$$\text{b) } \frac{x+y}{2x-6y} + \frac{x+3y}{9y-3x}$$

$$\text{d) } \frac{m^2-8m}{2m^2+m-15} - \frac{m}{5-2m}$$

$$\text{b) } \frac{2v+3w}{2v+w} - \frac{2v-w}{2v} - \frac{2v+3w}{w}$$

$$\text{b) } \frac{5}{p-2} - \frac{3}{2p+1} + \frac{1}{p+1}$$

$$\text{b) } \frac{b-c}{a^2+ac} - \frac{a-b}{ac+c^2} + \frac{a^2+c^2}{a^2c+ac^2}$$

$$\text{b) } \frac{u}{u-v} + \frac{v}{v-u} - \frac{u+v-1}{u+v}$$

$$\text{b) } \frac{3s}{(s-2)^2} - \frac{2}{s} + \frac{s+4}{2s-s^2}$$

$$\text{b) } \frac{1}{z^2-z} - \frac{2}{z^2} + \frac{1}{z^2+z}$$