

### Aufgabe 19

a)  $3\sqrt{a} - 5\sqrt{b} + 7\sqrt{a} + 5\sqrt{b} - \sqrt{a} = 9\sqrt{a}$

b)  $\sqrt{x} - 3\sqrt{y} + 4\sqrt{x} + 3\sqrt{y} - \sqrt{z} = 5\sqrt{x} - \sqrt{z}$

c)

$$\begin{aligned} 2a\sqrt{x} - b\sqrt{y} + b\sqrt{x} + a\sqrt{y} &= 2a\sqrt{x} + b\sqrt{x} + a\sqrt{y} - b\sqrt{y} \\ &= \sqrt{x} \cdot (2a + b) + \sqrt{y} \cdot (a - b) \end{aligned}$$

Alternative:

$$\begin{aligned} 2a\sqrt{x} - b\sqrt{y} + b\sqrt{x} + a\sqrt{y} &= 2a\sqrt{x} + a\sqrt{y} - b\sqrt{y} + b\sqrt{x} \\ &= a \cdot (2\sqrt{x} + \sqrt{y}) + b \cdot (-\sqrt{y} + \sqrt{x}) \\ &= a \cdot (2\sqrt{x} + \sqrt{y}) + b \cdot (\sqrt{x} - \sqrt{y}) \end{aligned}$$

d)  $1,6\sqrt{c} + 0,7\sqrt{d} - 0,3\sqrt{d} + \sqrt{c} + 0,6\sqrt{d} = 2,6\sqrt{c} + \sqrt{d}$

### Aufgabe 20

a)  $\sqrt{a} \cdot \sqrt{a} = \sqrt{a \cdot a} = \sqrt{a^2} = a, \text{ falls } a > 0$

b)  $\sqrt{b^3} \cdot \sqrt{b} = \sqrt{b^3 \cdot b} = \sqrt{b^4} = b^2, \text{ falls } b > 0$

c)  $\sqrt{b^2} \cdot \sqrt{b} = b\sqrt{b}, \text{ falls } b > 0$

d)  $\sqrt{25a} = \sqrt{25} \cdot \sqrt{a} = 5\sqrt{a}, \text{ falls } a > 0$

e)  $\sqrt{\frac{16}{x}} \cdot x^3 = \sqrt{\frac{16x^3}{x}} = \sqrt{16x^2} = 4x, \text{ falls } x > 0$

f)  $\sqrt{2b} \cdot \sqrt{8b} = \sqrt{2b \cdot 8b} = \sqrt{16x^2} = 4x, \text{ falls } x > 0$