

1)

$$\sqrt{\frac{2a^2}{5}} \cdot \sqrt{\frac{5^3}{32}} \cdot \sqrt{\frac{1}{5}}$$

$$= \sqrt{\frac{2a^2 \cdot 5^3 \cdot 1}{\cancel{5} \cdot 32 \cdot \cancel{5}}} = \sqrt{\frac{a^2 \cdot 5}{16}} = \underline{\underline{\frac{1}{4} a \sqrt{5}}}$$

2)

$$f(x) = x^2 - 6x + 8 : \text{Polynomform}$$

• Produktform:

Nullstellen:

$$x^2 - 6x + 8 = 0$$

$$x_{1/2} = \frac{6 \pm \sqrt{36 - 32}}{2} \quad \begin{matrix} x_1 = 4 \\ x_2 = 2 \end{matrix}$$

$$\rightarrow a = 1$$

$$\Rightarrow \underline{\underline{f(x) = (x-4)(x-2)}}$$

⚠ Vorzeichen
wechseln!!

• Scheitelform:

$$x_S = -\frac{b}{2a} = \frac{6}{2} = 3 \Rightarrow y_S = -1$$

$$\rightarrow S(3|-1) \Rightarrow \underline{\underline{f(x) = (x-3)^2 - 1}} \quad (a=1!)$$

$$3) \quad \frac{2}{x+1} + \frac{3}{x+2} = \frac{3}{x+3} \quad D = \left\{ x \in \mathbb{R} \mid \begin{array}{l} x \neq -1 \\ x \neq -2 \\ x \neq -3 \end{array} \right\}$$

Hauptnenner: HN

$$(x+1)(x+2)(x+3)$$

alle Brüche mit dem HN multipliz:

$$2(x+2)(x+3) + 3(x+1)(x+3) = 3(x+1)(x+2)$$

$$2[x^2 + 5x + 6] + 3[x^2 + 4x + 3] = 3[x^2 + 3x + 2]$$

$$\cancel{2x^2 + 10x + 12} + \cancel{3x^2 + 12x + 9} = 3x^2 + 9x + 6$$

$$5x^2 + 22x + 21 = 3x^2 + 9x + 6$$

$$2x^2 + 13x + 15 = 0$$

$$x_{1,2} = \frac{-13 \pm \sqrt{169 - 8 \cdot 15}}{4}$$

$$x_{1,2} = \frac{-13 \pm 7}{4} \quad \begin{array}{l} x_1 = -1,5 \\ x_2 = -5 \end{array}$$

K:

$$\underline{x = -5}: \quad \frac{2}{-4} + \frac{3}{-3} \stackrel{?}{=} \frac{3}{-2}$$

$$\underbrace{-\frac{1}{2} + (-1)}_{-\frac{3}{2}} \stackrel{?}{=} -\frac{3}{2}$$

$$-\frac{3}{2} = -\frac{3}{2} \quad \checkmark$$

$$\underline{x = -1,5}$$

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