

$$1) \frac{3x+2}{2\sqrt{x-1} + 3\sqrt{3-2x}} = f(x)$$

$$\text{D} : \begin{array}{ll} x-1 \geq 0 & x \geq 1 \\ 3-2x \geq 0 & x \leq 3/2 \end{array}$$

$$\begin{aligned} 2\sqrt{x-1} + 3\sqrt{3-2x} &= 0 \\ 2\sqrt{x-1} &= -3\sqrt{3-2x} \\ 4 \cdot (x-1) &= 9 \cdot (3-2x) \\ 4x-4 &= 27-18x \\ 22x &= 31 \\ x &= 31/22 \end{aligned}$$

$$\begin{aligned} &| -3\sqrt{3-2x} \\ 1 \uparrow^2 & \\ | \text{T Termumformung} & \\ | +18x + 4 & \\ | : 22 & \end{aligned}$$

$$\text{D} = x \in [1; 3/2] \setminus \{31/22\}$$

$$\{x \in \mathbb{R} \mid (x \geq 1 \wedge x \leq 3/2) \wedge x \neq 31/22\}$$

$$\frac{3x+2}{2\sqrt{x-1} + 3\sqrt{3-2x}} \cdot \frac{2\sqrt{x-1} - 3\sqrt{3-2x}}{2\sqrt{x-1} - 3\sqrt{3-2x}}$$

$$\frac{(3x+2) \cdot (2\sqrt{x-1} - 3\sqrt{3-2x})}{4 \cdot (x-1) - 9 \cdot (3-2x)}$$

$$4x - 4 - 27 + 18x$$

$$22x - 31$$

$$22x - 31$$

Polynom

vom Grade 4

$$4) \quad f(x) = x^4 - x^3 - 11x^2 + 9x + 18$$

$$(x^4 - x^3 - 11x^2 + 9x + 18) : (x-2) = x^3 + x^2 - 9x - 9$$

$$\begin{array}{r} -(x^4 - 2x^3) \\ \hline -x^3 - 11x^2 + 9x + 18 \\ (x^3 - 2x^2) \\ \hline -9x^2 + 9x + 18 \\ -(-9x^2 + 18x) \\ \hline -9x + 18 \\ -(-9x + 18) \\ \hline 0 \end{array}$$

$= 0$

$$\begin{array}{r}
 (x^3 + x^2 - 9x - 9) : (x+1) = x^2 - 9 \\
 \underline{-(x^3 + x^2)} \\
 -9x - 9 \\
 \underline{-(-9x - 9)} \\
 0
 \end{array}$$

$$x^2 - 9 = (x+3)(x-3)$$

Linearfaktor

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

$$L = \{-3; -1; 2; 3\}$$