

S: 12/10

$$d) f(x) = \frac{3x}{x^3 - 3x + 2}$$

Gesucht: Nullstelle, Polynomdivision \Rightarrow Mitternachtsformel

Mitternachtsformel \Rightarrow Definitionslücke

NST.:

$$3x = 0 \quad /: 3$$
$$x = \frac{0}{3}$$
$$x = 0$$

Polynomdivision: $(x^3 - 3x + 2) : (x-1) = \underline{x^2 + x - 2}$

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

Mitternachtsformel: $x^2 + x - 2 = 0$

$$x_{1/2} = \frac{-1 \pm \sqrt{1+8}}{2}$$

$$x_{1/2} = \frac{-1 \pm 3}{2} = \left\{ \begin{array}{l} 1 \\ -2 \end{array} \right\} \Rightarrow \mathbb{P} = \mathbb{R} \setminus \{1, -2\}$$

$$x_{1/2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$