

Aufgabe 6

a)

$$\begin{aligned}x^2 - 6x &= 0 \\x \cdot (x - 6) &= 0 \\x_1 &= 0 \\x - 6 &= 0 && | + 6 \\x_2 &= 6\end{aligned}$$

b)

$$\begin{aligned}10x - x^2 &= 0 \\x \cdot (10 - x) &= 0 \\x_1 &= 0 \\10 - x &= 0 && | + x \\10 &= x_2\end{aligned}$$

c)

$$\begin{aligned}x^2 + 4x &= 6x && | - 6x \\x^2 - 2x &= 0 \\x \cdot (x - 2) &= 0 \\x_1 &= 0 \\x - 2 &= 0 && | + 2 \\x_2 &= 2\end{aligned}$$

d)

$$\begin{aligned}
 4x^2 + 8x &= 0 \\
 x \cdot (4x + 8) &= 0 \\
 x_1 &= 0 \\
 4x + 8 &= 0 && | - 8 \\
 4x &= -8 && | : 4 \\
 x_2 &= -2
 \end{aligned}$$

e)

$$\begin{aligned}
 9x^2 - 5x &= 3x^2 - 10x && | - 3x^2 \\
 6x^2 - 5x &= -10x && | + 10x \\
 6x^2 + 5x &= 0 \\
 x \cdot (6x + 5) &= 0 \\
 x_1 &= 0 \\
 6x + 5 &= 0 && | - 5 \\
 6x &= -5 && | : 6 \\
 x_2 &= -\frac{5}{6}
 \end{aligned}$$

f)

$$\begin{aligned}
 5x - 10x^2 &= 5x && | - 5x \\
 -10x^2 &= 0 && | : (-10) \\
 x^2 &= 0 && | \sqrt{} \\
 x &= 0
 \end{aligned}$$

Aufgabe 7**a)**

$$\begin{aligned}(x-2)(x+3) &= 0 \\ x-2 &= 0 && | +2 \\ x_1 &= 2 \\ x+3 &= 0 && | -3 \\ x_2 &= -3\end{aligned}$$

b)

$$\begin{aligned}(2x+4)(5x+20) &= 0 \\ 2x+4 &= 0 && | -4 \\ 2x &= -4 && | :2 \\ x_1 &= -2 \\ 5x+20 &= 0 && | -20 \\ 5x &= -20 && | :5 \\ x_2 &= -4\end{aligned}$$

c)

$$\begin{aligned}x(x-2) &= 0 \\ x_1 &= 0 \\ x-2 &= 0 && | +2 \\ x_2 &= 2\end{aligned}$$

d)

$$\begin{aligned}(x+4)(x-9) &= 0 \\ x+4 &= 0 && | -4 \\ x_1 &= -4 \\ x-9 &= 0 && | +9 \\ x_2 &= 9\end{aligned}$$

e)

$$\begin{aligned}2 \cdot (x+1)(x+1) &= 0 \\ x+1 &= 0 && | -1 \\ x_{1,2} &= -1\end{aligned}$$

Zwei identische Lösungen!

f)

$$\begin{aligned}5x \cdot (x-2,5) &= 0 \\ 5x &= 0 && | :5 \\ x_1 &= 0 \\ x-2,5 &= 0 && | +2,5 \\ x_2 &= 2,5\end{aligned}$$