

Aufgabe:

Gebe den maximalen Definitionsbereich an!

1. $f(x) = \frac{2x+3}{x^2-9}$

2. $g(x) = \sqrt{2x-4}$

3. $h(x) = \ln(x^2+4x+3)$

1. Nenner = 0: $x^2 - 9 = 0 \quad | +9$
 $x^2 = 9 \quad | \sqrt{\quad}$
 $x_1 = 3 \quad \text{und} \quad x_2 = -3$
 $\rightarrow \mathbb{D} = \mathbb{R} \setminus \{-3; 3\}$

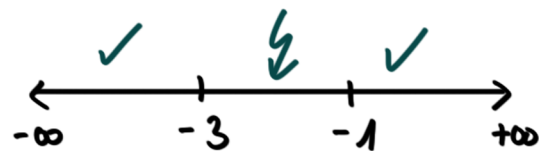
2. $d(x) \geq 0$: $2x - 4 \geq 0 \quad | +4$
 $2x \geq 4 \quad | :2$
 $x \geq 4$
 $\rightarrow \mathbb{D} = \mathbb{R}^{\geq 4}$

3. $a(x) > 0$: $x^2 + 4x + 3 > 0 \quad | \text{pq mit } p=4 \text{ und } q=3$

$$x_{1/2} = -\frac{4}{2} \pm \sqrt{\left(\frac{4}{2}\right)^2 - 3}$$
$$= -2 \pm \sqrt{1}$$
$$= -2 \pm 1$$

$$x_1 = -2 + 1 = -1$$

$$x_2 = -2 - 1 = -3$$



$$\mathbb{D} = x \in (-\infty; -3) \cup (-1; +\infty)$$