

S 48 Nr 4

$$g) f(x) = (x^4 - 16)(2x + 1)^2 = 0 \Rightarrow x^4 = 16 \Rightarrow \underline{\underline{x_{1,2} = \pm \sqrt[4]{16} = \pm 2}}$$

$$\sqrt{(2x+1)^2} = 0 \Rightarrow \underline{\underline{x_3 = -\frac{1}{2}}} \quad \text{Nullstellen} = \{-2, -\frac{1}{2}, 2\}$$

$$h) f(x) = 2x^2 + 15 - x^4 - 4x^2 = 0$$

$$-x^4 - 2x^2 + 15 = 0 \quad | \text{Sub. } x^2 = u$$

$$-u^2 - 2u + 15 = 0 \quad | \cdot (-1)$$

$$u^2 + 2u - 15 = 0$$

$$u_{1,2} = -1 \pm \sqrt{1^2 + 15} = -1 \pm \sqrt{16} = -1 \pm 4$$

$$u_1 = 3$$

$$\vee u_2 = -5$$

Rück Sub

$$x^2 = 3$$

$$\vee x^2 = -5 \quad \downarrow$$

$$\underline{\underline{x_{1,2} = \pm \sqrt{3}}}$$

keine weitere Lösung

$$\text{Nullstellen} = \{-\sqrt{3}, \sqrt{3}\}$$

$$i) f(x) = (x-2)\sqrt{x^2-1} = 0$$

$$\Rightarrow x-2=0 \quad \vee \sqrt{x^2-1}=0$$

$$\underline{\underline{x_1 = 2}}$$

$$\underline{\underline{x_{2,3} = \pm 1}}$$

$$\text{Nullstellen} = \{-1, +1, +2\}$$