



## Beispiel 2 für quadratische Gleichungen

$$x^2 + 1 = 0$$



# Lösung

$$x^2 + 1 = 0$$

$$x^2 = -1$$

$$x = \pm\sqrt{-1} = \pm i$$

$$x_1 = +i$$

$$x_2 = -i$$



## pq Formel

$$x^2 + 0x + 1 = 0$$

$$x = -\frac{p}{2} \pm \sqrt{\left(\frac{p}{2}\right)^2 - q}$$

$$x = -\frac{0}{2} \pm \sqrt{\left(\frac{0}{2}\right)^2 - 1}$$

$$x = \pm\sqrt{-1} = \pm i$$

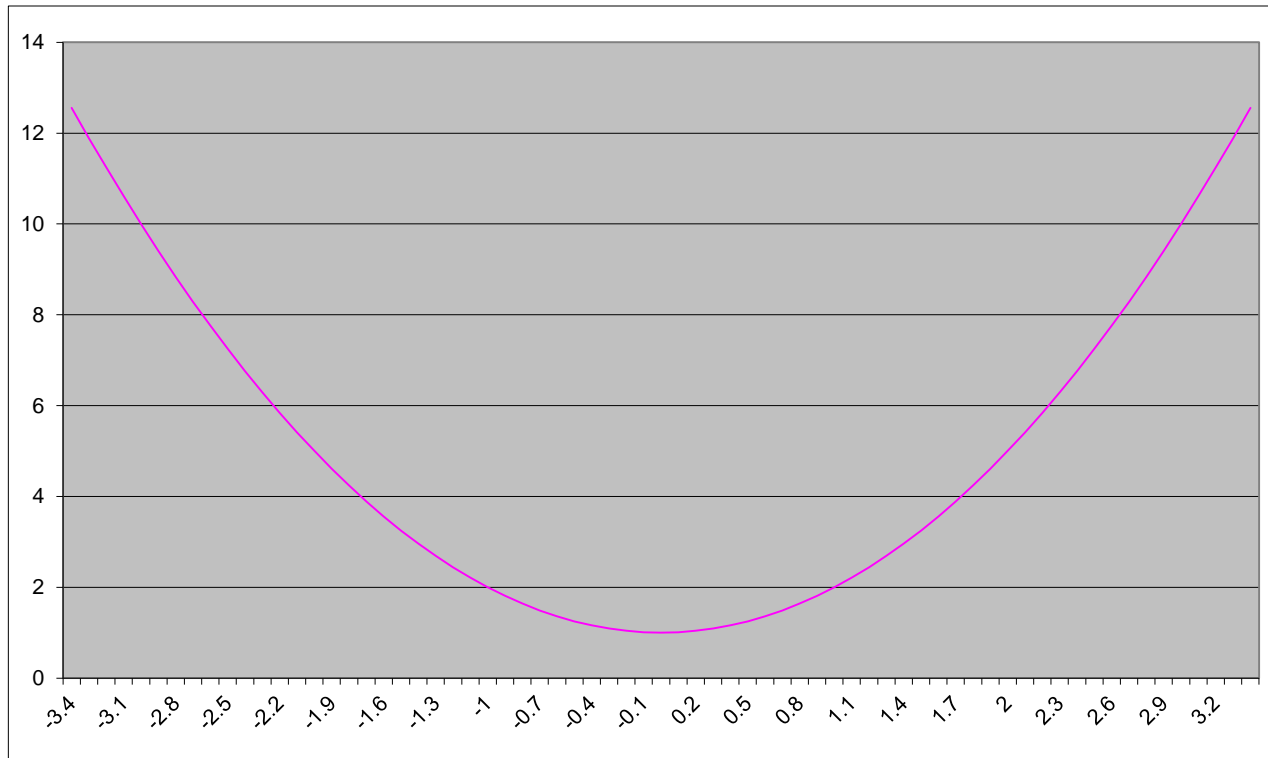
$$x_1 = +i$$

$$x_2 = -i$$



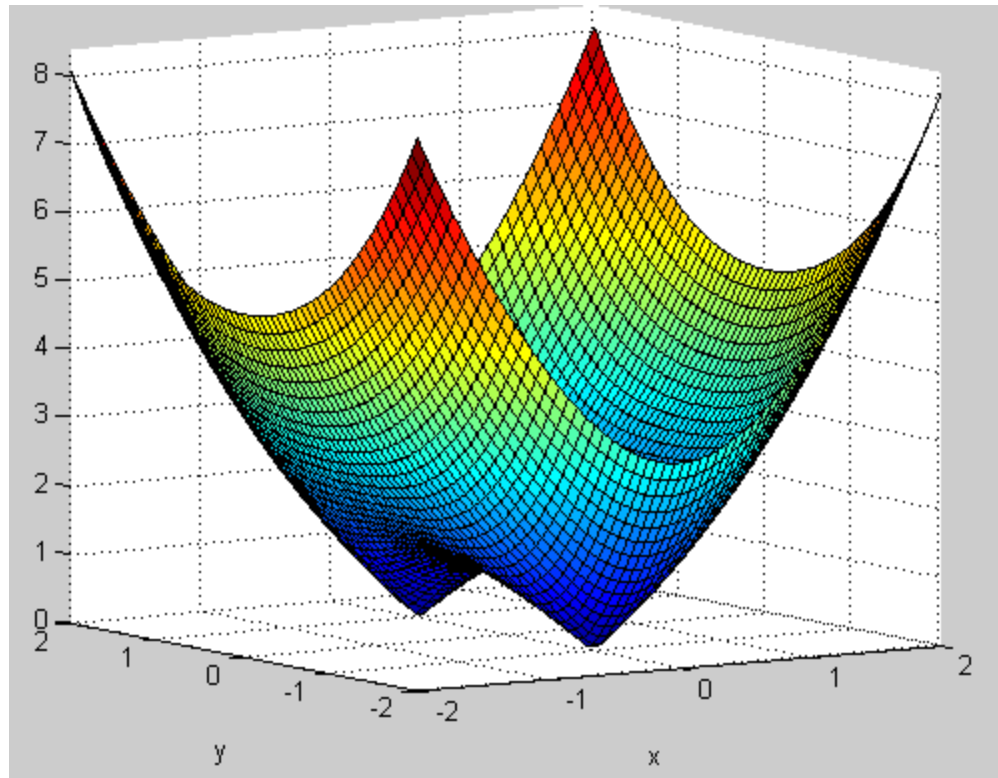
# Die Parabel

$$f(x) = x^2 + 1$$



# Die Parabel im Komplexen

$$|f(z)| = z^2 + 1 \quad z = x + iy$$



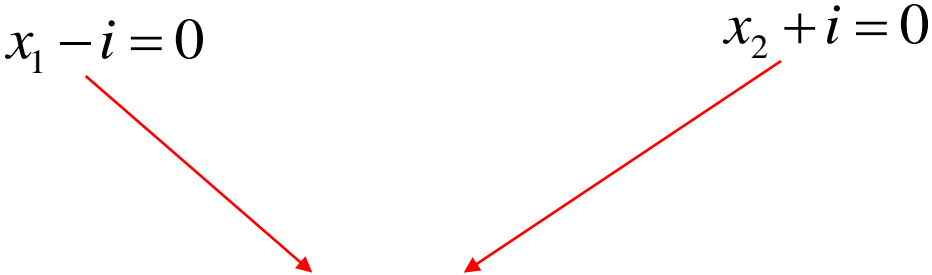
# Produktdarstellung

$$x_1 = i$$

$$x_2 = -i$$

$$x_1 - i = 0$$

$$x_2 + i = 0$$


$$(x - i)(x + i) = x^2 + 1$$

