

Praktikum 3

$$\begin{aligned} 1. \quad 999 \cdot 0,\overline{001} &= 999 \cdot 0,001001001\dots \\ &= 0,999999999\dots \\ &= 1 \end{aligned}$$

$$\Rightarrow 0,\overline{001} = \frac{1}{999}$$

$$\Rightarrow 0,\overline{123} = 123 \cdot 0,\overline{001} = \frac{123}{999}$$

$$2. \quad x^2 - 4x + 13 = 0$$

$$\begin{aligned} \Leftrightarrow x &= 2 \pm \sqrt{4-13} = 2 \pm \sqrt{-9} \\ &= 2 \pm 3i \end{aligned}$$

((ggf. Proberechnung!))

$$\begin{aligned} 3. \quad \frac{3+i}{i-3} &= \frac{(3+i)(-i-3)}{(i-3)(-i-3)} = \frac{-3i-9+1-3i}{1+9} \\ &= \frac{-6i-8}{10} = -\frac{4}{5} + \frac{3}{5}i \end{aligned}$$

$$|\gamma| = \sqrt{\frac{16}{25} + \frac{9}{25}} = \sqrt{\frac{25}{25}} = 1$$

((Das kann man später viel einfacher!))

