

Lösungen: (Ü(1))

1. Aufgabe

a) $1.25 + 2.11j$; $1.25 - 2.11j$

b) $\underline{z}_1 = 3 - 2j = 3.61 \cdot e^{-33,69^\circ j}$ und

$$\underline{z}_2 = 4 \cdot e^{20^\circ j} = 3.76 + 1.37j$$

$$\underline{z}_1 + \underline{z}_2 = 6.76 - 0.63j = 46.79 \cdot e^{5,32^\circ j},$$

$$\underline{z}_1 - \underline{z}_2 = -0.76 - 3.37j = 3.45 \cdot e^{257,29^\circ j},$$

$$\underline{z}_1 \cdot \underline{z}_2 = 14.44 \cdot e^{-13,69^\circ j} = 14.03 - 3.42j \text{ und}$$

$$\frac{\underline{z}_1}{\underline{z}_2} = 0.9 \cdot e^{-53,69^\circ j} = 0.53 - 0.73j$$

2. Aufgabe

a) $\underline{u}_1 = 4 \cdot e^{-48,59^\circ j} = 2.65 - 3j$

$$\underline{u}_2 = 6 \cdot e^{41,81^\circ j} = 4.47 + 4j$$

b) $\underline{u}_{sum} = \underline{u}_1 + \underline{u}_2 = 7.12 + 1j = 7.12 + j = 7.19 \cdot e^{7,99^\circ j}$

c) $u_{sum}(t) = 7.19 \cdot \sin(314.16 \cdot t + 0.14)$

3. Aufgabe