

B1 $A \Rightarrow B = \bar{A} \vee B$ allg. Umformung

$$\begin{aligned} A \vee \bar{B} &\Rightarrow (A \wedge B) \vee C = \overline{A \vee \bar{B}} \vee ((A \wedge B) \vee C) = (\bar{A} \wedge B) \vee (A \wedge B) \vee C \\ &= ((\bar{A} \vee A) \wedge B) \vee C = B \vee C \end{aligned}$$

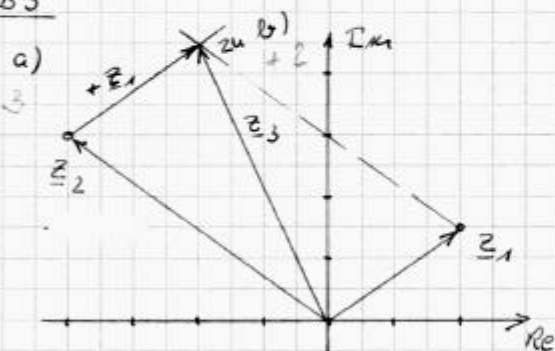
$\underbrace{\quad}_{=B}$ $\uparrow$ B ausgespart, in Wurf

B2 $x^2 \leq 4 \rightarrow x \leq 2$ oder $x \geq -2 \rightarrow A = [-2, +2]$

$$(x-2)^2 \leq 9 \rightarrow x-2 \leq 3 \text{ oder } x-2 \geq -3 \quad \begin{matrix} x \leq 5 \\ x \geq -1 \end{matrix} \quad B = [-1, 5]$$

$$A \cup B = [-2, 5]; \quad A \cap B = [-1, 2]; \quad A - B = [-2, -1]$$

B3



b) $z_3 = 4 + i3 - 8 + i6$

$z_3 = -4 + i9$

c) $z_1 = \sqrt{16+9} \cdot e^{i \cdot \arctan(\frac{3}{4})} = 5 \cdot e^{i 37^\circ}$
 $z_2 = \sqrt{64+36} \cdot e^{i(\arctan(\frac{6}{8})+180^\circ)} = 10 \cdot e^{i(180^\circ-37^\circ)} = 10 \cdot e^{i 143^\circ}$

d) $z_4 = \frac{5}{10} \cdot e^{i(37^\circ-143^\circ)} = 0.5 \cdot e^{-i 106^\circ}$
 $= 0.10 - i 0.48$

B4

$$\vec{g}(t) = \begin{pmatrix} 1 \\ 2 \\ 0 \end{pmatrix} + \begin{pmatrix} t \\ t \\ t \end{pmatrix} = \begin{pmatrix} 1+t \\ 2+t \\ t \end{pmatrix}$$

$$\vec{g}(t) \cdot \vec{n} = \begin{pmatrix} 1+t \\ 2+t \\ t \end{pmatrix} \cdot \begin{pmatrix} 2 \\ 2 \\ 0 \end{pmatrix} = 2 \cdot (1+t) + 2 \cdot (2+t) = 6 + 4t = 2$$

$$\Rightarrow t = -1$$

B5

$$\begin{array}{rcl} -1 \cdot x_1 & -1 \cdot x_2 & = -1 \\ 1 \cdot x_1 & +4 \cdot x_2 & = -2 \\ 2 \cdot x_1 & -2 \cdot x_2 & = 6 \end{array}$$

$$\begin{array}{ccc} -1 & -1 & \vdots -1 \\ 0 & 3 & \vdots -3 \\ 0 & -4 & \vdots 4 \end{array} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{ aus beiden } \Rightarrow x_2 = -1$$

$$\underline{x_1 = 1 - x_2 = 2}$$