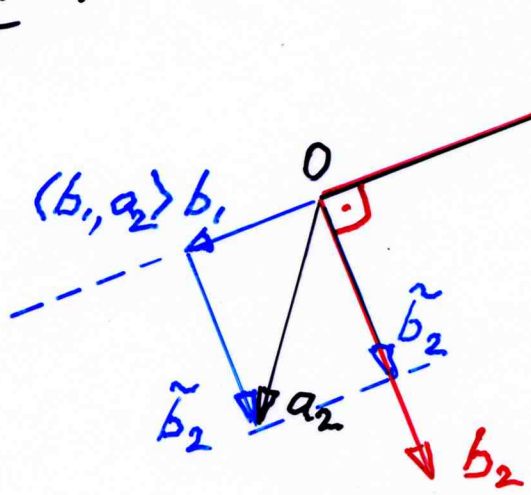


# Gram-Schmidt

im  $\mathbb{R}^2$ :



$$b_1 = \frac{a_1}{\|a_1\|}$$

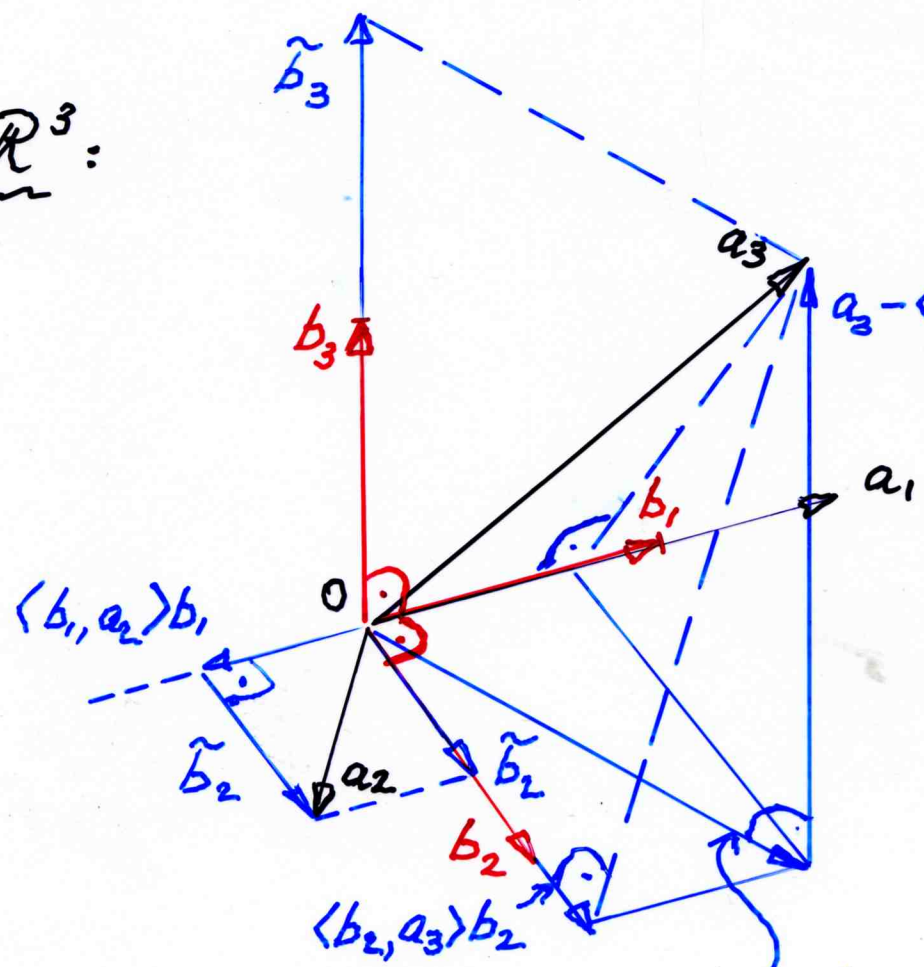
$$\tilde{b}_2 = a_2 - \langle b_1, a_2 \rangle b_1$$

$$\tilde{b}_2 = \underbrace{(I - b_1 b_1^T)}_{\text{Projektor}} a_2$$

$V = \mathbb{R}^2$

$$b_2 = \frac{\tilde{b}_2}{\|\tilde{b}_2\|}$$

im  $\mathbb{R}^3$ :



$$a_3 - \langle b_1, a_3 \rangle b_1 - \langle b_2, a_3 \rangle b_2 =: \tilde{b}_3$$

$$\langle b_1, a_3 \rangle b_1 + \langle b_2, a_3 \rangle b_2$$