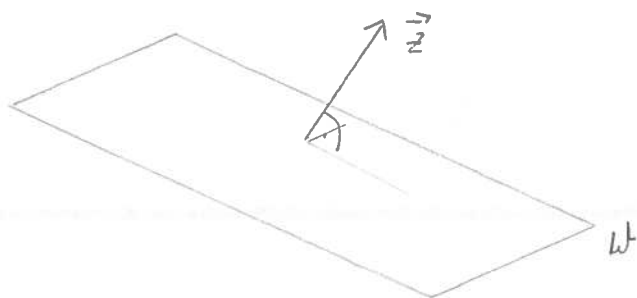


## REPETITION 03/11

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$$W^\perp = \{ \vec{z} \in \mathbb{R}^n \mid \vec{z} \cdot \vec{u} = 0 \text{ for all } \vec{u} \in W \}$$

orthogonal complement of  $W$

•  $W = \text{span} \{ \vec{w}_1, \dots, \vec{w}_p \}$  . Then

$$\vec{x} \in W^\perp \iff \vec{x} \cdot \vec{w}_i = 0 \text{ for all } i = 1, \dots, p$$

Theorem 8.3

Let  $A$  be an  $m \times n$  matrix. Then

$$(\text{Row } A)^\perp = \text{Nul } A \quad \text{and} \quad (\text{Col } A)^\perp = \text{Nul } A^T$$