

Homework 1.4.3.11 Let  $x, y \in \mathbb{R}^n$  with  $x^T y = 0$ .  
 $x = 0$  or  $y = 0$ . Always Sometimes / Never

$$\text{let } x = \begin{pmatrix} 1 \\ -2 \end{pmatrix} \quad y = \begin{pmatrix} 0 \\ 0 \end{pmatrix} \quad z = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

$$x^T y = (1)0 + (-2)0 = 0$$

$$x^T z = (1) \cdot 2 + (-2)(1) = 0$$