Math 3280 Worksheet 19: Vector Spaces

Group members (2 to 4): _____

(1) Is the subset $W = \{(x, y) \mid y \geq 0\} \subset \mathbb{R}^2$ a vector subspace of $\mathbb{R}^2$? Explain why or why not.

(2) Is the subset $W = \{(x, y) \mid y = 0 \text{ or } x = 0\} \subset \mathbb{R}^2$ a vector subspace of $\mathbb{R}^2$? Explain why or why not.

(3) Is the set of four-by-four skew-symmetric matrices $(A^T = -A)$ a vector subspace of the set of all four-by-four matrices with real entries?