

Problem 1: Let

$$a = \begin{pmatrix} 1 & 1 & 1 \end{pmatrix}, b = \begin{pmatrix} 1 & -1 & 0 \end{pmatrix}$$

Is $\{a, b\}$ orthogonal? Orthonormal?

Problem 2: Define:

- a) Basis
- b) Dimension
- c) Nullity
- d) Rank

Problem 3: Is an Orthonormal set necessarily Orthogonal? Justify.