

Name:

**Problem 1:** Compute the rank of the matrix

$$A = \begin{pmatrix} 1 & -1 & 2 \\ 3 & -3 & 6 \\ -2 & 2 & -4 \end{pmatrix}.$$

Since the rank is a dimension, justify your answer by giving a basis, and arguing that the set you give is a basis.