Consider a matrix $A \in M_{86}(F)$ in RREF and has 4 pivot columns. Determine the nullity of A

Problem Solving - What are the terms/strategies I may need? What do I know?

Theorems:

1) Rank of A is the number of pivots in the RREF matrix.
2) Nullity of A is the number of non-pivots in A.

Definition of $M_{86}(F)$

A matrix with 8 rows 6 columns with entries over the field of F.

Consider a matrix $A \in M_{86}$ in RREF and has 4 pivot columns. Determine the nullity of A

Steps & Process – Try to answer the question writing in many steps to avoid small errors.

Since there are 4 pivot columns in the matrix and 6 columns in R, there are 2 non-pivot columns.

Therefore Nullity(A) = 2

Consider a matrix $A \in M_{86}$ in RREF and has 4 pivot columns. Determine the nullity of A

Solidify Understanding – Explain why the steps makes sense by connecting to math you know.

Why do we select the columns of A for col space but the rows of B for the row space?

Why does Rank + Nullity = m when a matrix is an A_{nm}?

Would the columns of A span R^6? Would they span R^8? Why or why not?

What would be the maximum and minimum Rank values for this matrix?

What would be the maximum and minimum Nullity values for this matrix?

For Video Please click the link below:

Video