

Statements about Linear Algebra

As we get more abstract in mathematics, it is important to be careful with language and ideas. Here are some common errors that students tend to make (if you made one of these, don't fret- they are very common).

Find the “error” and make the statement correct.

1. “If A does not have a pivot in each row, then A has a free variable”.
2. “If A does not have a pivot in each row, then the solution to $A\mathbf{x} = \mathbf{b}$ is never unique.”
3. “If $A\mathbf{x} = \mathbf{b}$ does not have a solution, there must be at least one row of zeros in A .”
4. Can two vectors span \mathbb{R}^3 ? “No, because two vectors can only span \mathbb{R}^2 .”
5. “If A is 3×3 , and $A\mathbf{x} = \mathbf{b}$ has a solution for every \mathbf{b} , then A spans \mathbf{b} ”.
6. “The definition of linear independence for two vectors says that two vectors are linearly independent if they are not constant multiples of each other”.