Answer on Question #40788 – Math - Linear Algebra

If A and B are two matrices of same order and rank (A)=rank (B)=n , then rank (A+B)=n , for n>1.

Solution:

Let us show that this statement is false. Indeed if (A)=$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{pmatrix}$, (B)= $\begin{pmatrix} 0 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$ we get rank(A)=rank(B)=2 (in this case n=2), but rank(A+B)=3. So, the statement above is false.

Answer: false**.**