Step-1

We have to fill the blanks in the following question:

If $AB = 0$, the columns of B are in the ——— of A, the rows of A are in the ——— of B. And we have to explain why canâ€™t A and B be 3 by 3 matrices of rank 2.

Step-2

If $AB = 0$, the columns of B are in the null space of A. the rows of A are in the left null space of B.

If rank = 2, those four subspaces would have dimension 2

This is impossible for 3 by 3 matrices.