
Exercise 1 Consider the following augmented matrix in which * denotes an arbitrary number and ■ denotes a nonzero number.

$$\left[\begin{array}{ccccc|c} \blacksquare & * & * & * & * & * \\ 0 & \blacksquare & * & * & * & * \\ 0 & 0 & \blacksquare & \blacksquare & * & * \\ 0 & 0 & 0 & 0 & \blacksquare & 0 \end{array} \right]$$

Which of the following is true? Select all that apply.

Select All Correct Answers:

1. The corresponding system of equations is consistent.
2. The corresponding system of equations is inconsistent.
3. The rank of the augmented matrix is 4.
4. The rank of the augmented matrix is 5.
5. The rank of the augmented matrix is 6.
6. There are no free variables.
7. There is one free variable.
8. There are two free variables.
9. The corresponding system has a unique solution.
10. The corresponding system has infinitely many solutions.

Bibliography

This problem is based on Ken Kuttler, *A First Course in Linear Algebra*, Lyryx 2017, Open Edition, pp. 42–49.