

1 True or False or quick questions. Answer True/False or give answer in the box provided. No justifications needed.

(a) If Gaussian elimination requires two minutes to solve a system, how long (approximately) would it take to solve the same system by Gauss-Jordan on the same computer? **Ans:**

(b) Gaussian elimination with partial pivoting is much more expensive than Gaussian Elimination..... **Ans:**

(c) An inconsistent system is one that has only zero as its solution. True/False **Ans:**

2 For what values of the parameters a and b does the following system (i) have one solution; (ii) no solution; and (iii) infinitely many solutions:

$$\begin{cases} x_1 + ax_2 = 1 \\ 2x_1 + x_2 = b \end{cases}$$

3 Put the following system in augmented matrix form and solve it with Gaussian elimination:

$$\begin{cases} 4x_1 + 4x_2 + 2x_3 = 2 \\ 4x_1 + 5x_2 + x_3 = 1 \\ 2x_1 + x_2 + 6x_3 = -2 \end{cases}$$