

Score:

Name:

Solutions

Period (circle one): 1 2 3 4 5 6

Team (circle one): a b c d e f

SM286 – Quiz 12 – Appendix 2
Matrices/Gaussian Elimination

1. Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$. If possible calculate AB and/or BA .

$$AB = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \end{bmatrix} = \begin{bmatrix} 1+4 \\ 3+8 \end{bmatrix} = \begin{bmatrix} 5 \\ 11 \end{bmatrix}$$

$$BA = \begin{bmatrix} 1 \\ 2 \end{bmatrix} \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix} = (2 \times 1)(2 \times 2) \Rightarrow \text{can't do this}$$

2. Use Gaussian Elimination to solve the following linear system:
$$\begin{cases} x + y + z = 3 \\ 3x - y + 5z = 13 \\ x - y + 2z = 5 \end{cases}$$

You may use your calculator to solve the system.

$$\begin{bmatrix} 1 & 1 & 1 & 3 \\ 3 & -1 & 5 & 13 \\ 1 & -1 & 2 & 5 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 0 & 3/2 & 4 \\ 0 & 1 & -1/2 & -1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

infinite # of solutions