QUIZ 25 SOLUTIONS: LESSON 32
APRIL 12, 2019

Write legibly, clearly indicate the question you are answering, and put a box or circle around your final answer. If you do not clearly indicate the question numbers, I will take off points. Write as much work as you need to demonstrate to me that you understand the concepts involved. If you have any questions, raise your hand and I will come over to you.

1. Given the matrices

$$A = \begin{bmatrix} -5 & 5 \\ 2 & 4 \end{bmatrix} \text{ and } B = \begin{bmatrix} -2 & 0 \\ 3 & 4 \end{bmatrix},$$

compute

(a) [2 pts] $3A$

$$3A = 3\begin{bmatrix} -5 & 5 \\ 2 & 4 \end{bmatrix} = \begin{bmatrix} 3(-5) & 3(5) \\ 3(2) & 3(4) \end{bmatrix} = \begin{bmatrix} -15 & 15 \\ 6 & 12 \end{bmatrix}$$

(b) [3 pts] $3A - 2B$

$$3A - 2B = \begin{bmatrix} -15 & 15 \\ 6 & 12 \end{bmatrix} - \begin{bmatrix} -4 & 0 \\ 6 & 8 \end{bmatrix} = \begin{bmatrix} -15-(-4) & 15-0 \\ 6-6 & 12-8 \end{bmatrix} = \begin{bmatrix} -11 & 15 \\ 0 & 4 \end{bmatrix}$$

2. [5 pts] Compute AB given

$$A = \begin{bmatrix} 3 & 3 \\ 0 & 1 \\ -4 & 1 \end{bmatrix} \text{ and } B = \begin{bmatrix} -5 & -4 & 3 \\ 5 & -2 & 2 \end{bmatrix}.$$

A is a (3×2) and B is a (2×3). Hence, AB is a (3×3) matrix.

$$\begin{bmatrix} 3 & 3 \\ 0 & 1 \\ -4 & 1 \end{bmatrix}\begin{bmatrix} -5 & -4 & 3 \\ 5 & -2 & 2 \end{bmatrix} = \begin{bmatrix} 3(-5)+3(5) & 3(-4)+3(-2) & 3(3)+3(2) \\ 0(5)+1(5) & 0(-4)+1(-2) & 0(3)+1(2) \\ -4(-5)+1(5) & -4(-4)+1(-2) & -4(3)+1(2) \end{bmatrix}$$

$$= \begin{bmatrix} 0 & -18 & 15 \\ 5 & -2 & 2 \\ 25 & 14 & -10 \end{bmatrix}$$