MTH 266, Quiz #4, Spring 2019 Name KEY

Instructions: You must show all work to receive full credit for the problems below. You may check your work with a calculator, but answers without work will receive minimal credit. Use exact answers unless the problem starts with decimals or you are specifically asked to round.

1. For the matrices $A = \begin{bmatrix} 1 & 1 \\ -3 & 2 \end{bmatrix}, B = \begin{bmatrix} 5 & -3 \\ 0 & 4 \end{bmatrix}, C = \begin{bmatrix} 2 & 1 & 1 \\ -1 & 3 & 7 \end{bmatrix}, D = \begin{bmatrix} -2 \\ 5 \\ 1 \end{bmatrix}$ perform the indicated operations or state why the operation is not possible. Do these operations by hand.

   a. AB

$$\begin{bmatrix} 5+0 & -3+4 \\ -15+0 & 9+8 \end{bmatrix} = \begin{bmatrix} 5 & 1 \\ -15 & 17 \end{bmatrix}$$

   b. $A + B$

$$\begin{bmatrix} 6 & -2 \\ -3 & 6 \end{bmatrix}$$

   c. A^{-1}

$$\frac{1}{2+3}\begin{bmatrix} 2 & -1 \\ 3 & 1 \end{bmatrix} = \begin{bmatrix} 2/5 & -1/5 \\ 3/5 & 1/5 \end{bmatrix}$$

   d. CD

$$\begin{bmatrix} -4+5+1 \\ 2+15+7 \end{bmatrix} = \begin{bmatrix} 2 \\ 24 \end{bmatrix}$$

   e. C^T

$$\begin{bmatrix} 2 & -1 \\ 1 & 3 \\ 1 & 7 \end{bmatrix}$$