Name:_____

6.0/6.2 Matrix Operations

State whether the product of AB is defined. If so, give the dimensions of AB.

1) A: 2X 2 B: 3 X 2

2) A: 6 X 1 B: 1 X 6

3) A: 2 X 4 B: 4 X 4

4) A: 3 X 5 B: 3 X 3

Complete the next step of the matrix multiplication.(each step is written out)

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

6) $\begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix}\begin{bmatrix} -4 & 6 \end{bmatrix} = \begin{bmatrix} \underline{1(-4)} & \underline{1(6)} \\ \_\_ & \_\_ \\ \_\_ & \_\_ \end{bmatrix}$

For 7& 8, find the product if possible.

7) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}\begin{bmatrix} -1 & 3 \\ 2 & 5 \end{bmatrix}$

8) $\begin{bmatrix} 2 & 0 & 1 \\ -3 & 1 & 2 \\ 0 & 0 & 4 \end{bmatrix}\begin{bmatrix} -2 & -1 & 2 \\ 1 & 0 & 3 \\ 0 & -4 & 1 \end{bmatrix}$

9) Given $A = \begin{bmatrix} 3 \\ -1 \\ 0 \end{bmatrix}$ $B = \begin{bmatrix} 2 \\ 5 \\ 1 \end{bmatrix}$ $C = \begin{bmatrix} 4 & -4 & 2 \end{bmatrix}$

find (B - A)C

7) Multiply

$\begin{bmatrix} 1 & 2 & 3 \end{bmatrix} \bullet \begin{bmatrix} 3 \\ 2 \\ 1 \end{bmatrix}$

8) Simplify

$\frac{1}{2}\left(\begin{bmatrix} 7 & 8 \\ -5 & 1 \end{bmatrix} + \begin{bmatrix} 5 & 12 \\ 0 & 8 \end{bmatrix}\right)$

9) Solve:

$\begin{bmatrix} x & 8 \\ 0 & y \end{bmatrix} \bullet \begin{bmatrix} -2 & 3 \\ 1 & 4 \end{bmatrix} = \begin{bmatrix} -4 & 50 \\ 1 & 4 \end{bmatrix}$

10) Condominium owners must pay yearly fees to cover the cost of maintenance, landscaping, and remodeling. The fees this year are $96, $18, and $66 for a 1 – bedroom unit, and $128, $24, and $88 for a 2 – bedroom unit. The fees next year are $105, $20, and $73 for a 1 – bedroom unit, and $141, $26, and $97 for a 2 – bedroom unit. Use matrices to organize the information. Then use the matrices to find the yearly changes in fees from this year to next year.