Linear Systems & STAT – Examination One Review – Matrices

Name: Date: Period:

1. Create a 4x5 matrix.

2. If this matrix is named M, identify element $M_{3,2}$

Given the following matrices, answer questions 3-8.

$$A = \begin{pmatrix} 2 & -3 \\ -4 & 7 \end{pmatrix} \quad B = \begin{pmatrix} 1 & 0 \\ 5 & -9 \end{pmatrix} \quad C = \begin{pmatrix} 2 & 3 \\ 1 & -3 \\ 4 & 5 \end{pmatrix}$$

3. What is the dimension of B?

4. Add matrices B and A.

5. Multiply matrix C by -3

6. Identify element $C_{2,1}$ and explain how you know this.

7. Create a matrix D to add to matrix C.

8. Find the difference of matrices C and D.

9. Create a matrix that you can add to matrix E to get matrix F.

$$E = \begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix} \quad F = \begin{bmatrix} 3 & 1 \\ 3 & 10 \end{bmatrix} \qquad E + [?] = F$$

10. Multiply matrix G and matrix H. $G = \begin{bmatrix} \Delta & \Sigma \\ \Theta & X \end{bmatrix} \quad H = \begin{bmatrix} \Theta & \Delta \\ X & \lambda \end{bmatrix}$

11. Create a matrix J that you can multiply by matrix M from question 2.

12. Find M * J

13. Create a product to change matrix K so the new matrix has elements that are all Integers.

$$K = \begin{pmatrix} \dfrac{1}{5} & \dfrac{2}{5} \\[2mm] \dfrac{3}{5} & \dfrac{-1}{5} \\[2mm] \dfrac{4}{10} & \dfrac{4}{5} \end{pmatrix}$$

14. Two softball teams submit equipment lists to their sponsors as shown below. Each bat costs $48, each ball costs $4 and each glove costs $42. Create two matrices and use their product get the total cost of equipment for each team.

	Woman's Team	Men's Team
Bats	12	15
Balls	45	38
Gloves	15	17

15.

If $\triangle ABC$ is defined by the matrix

$P = \begin{bmatrix} -7 & 4 & 2 \\ 3 & -1 & 6 \end{bmatrix}$, what are the coordinates

of $\triangle ABC$ after it has been reflected

using the reflection matrix $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$?