DATE: _____

Unit 8 (Chapter 6 & 7): Matrices & Vectors **Pre-Calculus**

7.2 Matrix Algebra

Target 8E: Represent a system of linear equations in matrix equation form

Review of Prior Concepts

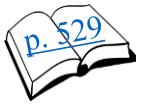
Organize this information into a chart:
Team A scored 4 3-point baskets, 22 2-point baskets, and 7 1-point baskets in a game against team B.
Team B scored 8 3-point baskets, 18 2-point baskets, and 12 1-point baskets in the game.

More Practice

Introduction to Matrices
http://mathinsight.org/matrix_introduction
http://www.basic-mathematics.com/introduction-to-matrices.html
https://www.youtube.com/watch?v=F4bmfKqvT_4
https://www.youtube.com/watch?v=0oGJTQCy4cQ

Vocabulary

Matrix – a rectangular array of *m* rows and *n* columns



$$m \times n \text{ matrix} \rightarrow \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a & \cdots & a \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a & \cdots & a \end{bmatrix}$$

An **element** of the matrix is a_{mn} where ____ is the row and ____ is the column

Order (size) of the matrix: $m \times n$

Example:
Given the matrix $\begin{bmatrix} 1 & -2 & 3 \\ 2 & 0 & 4 \end{bmatrix}$, identify the order, a_{21}, and a_{12}.

(With your group members, do TI-Nspire Activity: Operating on Matrices Part I)

Adding/Subtracting Matrices

- The matrices need to have the _____ order
- Add/Subtract the corresponding elements

Example:
Given $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 0 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 2 \\ 5 & 0 \end{bmatrix}$, and $C = \begin{bmatrix} 3 & 0 & 5 \\ 1 & -2 & 7 \end{bmatrix}$, find $A + B$, $A - C$, and $4B$.

(With your group members, do TI-Nspire Activity: Operating on Matrices Part II)

Multiplying Matrices

- Can only multiply an $m \times r$ matrix with an $r \times n$ matrix

Example:

Given $A = [1 \quad -2 \quad 3]$, $B = \begin{bmatrix} 1 & 2 \\ 5 & 0 \end{bmatrix}$, and $C = \begin{bmatrix} 3 & 0 & 5 \\ 1 & -2 & 7 \end{bmatrix}$, find AB and BC.

More Practice

Operations with Matrices

http://www.mathsisfun.com/algebra/matrix-introduction.html
https://www.khanacademy.org/math/precalculus/precalc-matrices#adding-and-subtracting-matrices
http://www.algebralab.org/lessons/lesson.aspx?file=algebra_matrix_operations.xml
https://www.youtube.com/watch?v=xr6qsiEznKU
https://www.youtube.com/watch?v=SPFWVUkxk8E
https://www.youtube.com/watch?v=kuixY2bCc_0
https://www.youtube.com/watch?v=sYlOjyPyX3g

Homework Assignment

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