**Arithmetic with Matrices**

Follow the directions below and then answer the question using your graphing calculator.

(1) Turn on your graphing calculator and press **2nd MATRIX**.

(2) Go to **EDIT** and press enter at **1: [A].**

(3) Type **2** x **3**. This is the dimension of your first matrix.

(4) Enter the following matrix: $\begin{matrix}2&5&-1\\0&11&15\end{matrix}$

(5) Press **2nd QUIT**.

(6) Press **2nd MATRIX**.

(7) Go to **EDIT** and press enter at **2: [B].**

(8) Type **2** x **3**. This is the dimension of your second matrix.

(9) Enter the following matrix: $\begin{matrix}-5&15&0.5\\9&\frac{2}{3}&17\end{matrix}$

(10) Press **2nd QUIT**.

(11) Press **2nd MATRIX** and press enter on **1: [A]** then **+** press **2nd MATRIX** and press enter on **2: [B]** and press enter. You just added Matrix A and B.

Do the following problem and write your solution as a group on one whiteboard. Call me over when you are done.

$A=\left[\begin{matrix}2&-3\\2/5&7/8\\&\end{matrix}\right]$ $B=\left[\begin{matrix}3/5&6\\11&23\\&\end{matrix}\right]$

What is $3A-6B$?

What is $A\*B$?

**Determinants of Matrices**

Follow the directions below and then answer the question using your graphing calculator.

(1) Press **2nd MATRIX**.

(2) Go to **MATH** and press enter on **1: det (**

(3) Press **2nd MATRIX** and press enter on **1: [A]** and close the parenthesis **)**.

(4) Press enter. You just found the determinant of A.

Do the following problem and write your solution as a group on one whiteboard. Call me over when you are done.

$A=\left[\begin{matrix}5&7&-11\\15&6.7&9\\11.2&0&1\end{matrix}\right]$

What is $|A|$?

**Solving a System of Matrices using Row Reductions**

Follow the directions below and then answer the question using your graphing calculator.

(1) Press **2nd MATRIX**.

(2) Go to **MATH** and press enter on **B: rref (**

(3) Press **2nd MATRIX** and press enter on **1: [A]** and close the parenthesis **)**.

(4) Press enter. You just found the solution to the system of A.

Do the following problem and write your solution as a group on one whiteboard. Call me over when you are done.

$$\left\{\begin{matrix}8x-5y=18\\5x+8y=-11\end{matrix}\right.$$

What is $x$ and what is $y$?