Keeper #2: Multiplying Matrices

A = $\left[\begin{matrix}2&0&2\\1&5&-4\end{matrix}\right]$ B = $\left[\begin{matrix}-1&2&3\\0&1&8\end{matrix}\right]$ C = $\left[\begin{matrix}3&3&5\\-4&-5&0\end{matrix}\right]$

1. $A+B+C$ 2. $3C-2B$ 3. $4A+C$

4. See if you can figure out the pattern in order for this to make sense!

 $\left[\begin{matrix}1&5\\2&4\end{matrix}\right] $ x $\left[\begin{matrix}3&4\\1&8\end{matrix}\right]$ = $\left[\begin{matrix}8&44\\10&40\end{matrix}\right]$

To multiply an \_\_\_\_\_\_\_\_\_\_\_ matrix by an \_\_\_\_\_\_\_\_\_ matrix, the ns must be the same, and the result is

an \_\_\_\_\_\_\_\_\_\_\_\_ matrix.

State the resulting dimensions (if possible) if multiplying the following matrices:

a) $\left[3x2\right] x [2x1]$ b) $\left[4x2\right] x [2x3]$ c) $\left[2x2\right] x [3x2]$

Matrix B

Matrix A

$\left[\begin{matrix}a&b\\c&d\end{matrix}\right]$ x $\left[\begin{matrix}e&f\\g&h\end{matrix}\right]$ = $\left[\begin{array}{c} \\ \\ \end{array}\right]$ = $\left[\begin{array}{c} \\ \\ \end{array}\right]$



$\left[\begin{matrix}1&5\\2&4\end{matrix}\right]$ x $\left[\begin{matrix}3&4\\1&8\end{matrix}\right]$ = $\left[\begin{array}{c} \\ \\ \end{array}\right]$ = $\left[\begin{array}{c} \\ \\ \end{array}\right]$

Ex. 1 Ex. 2

 

Ex. 3 Ex. 4

 

\*Multiply any square matrix by $\left[\begin{matrix}1&0\\0&1\end{matrix}\right]$ for a 2x2 or $\left[\begin{matrix}1&0&0\\0&1&0\\0&0&1\end{matrix}\right]$ for a 3x3 and see what happens