

Multiplying Matrices



ROW X COLUMN



steps:

1. State the dimensions of each matrix.
2. Determine if it is possible to multiply them.
3. Set up the "Template".
4. Multiply "Row x Column"
5. Simplify

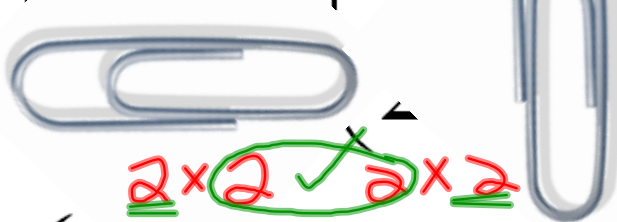
Enjoy!



***The
Secret
Weapon***

1.

$$\begin{pmatrix} 1 & 5 \end{pmatrix} \begin{pmatrix} 3 \\ 2 \end{pmatrix}$$



$$\begin{pmatrix} \underline{1+2} & \underline{4+30} \\ \underline{6+2} & \underline{2+5} \end{pmatrix}$$

$$= \begin{pmatrix} 24 & 34 \\ 8 & 7 \end{pmatrix}$$

i
row +
column





3x2

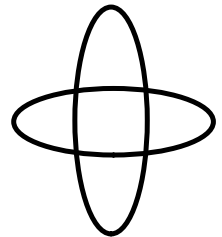
$$\begin{pmatrix} 2 & 1 \\ 3 & 0 \\ 2 & 1 \end{pmatrix} \begin{pmatrix} 0 & 2 \\ 1 & 4 \end{pmatrix}$$

3x2 2x2

$$\begin{pmatrix} 0+1 & 1+4 \\ 0+0 & 6+0 \\ 0+1 & 4+4 \end{pmatrix}$$

$$= \begin{pmatrix} 1 & 8 \\ 0 & 6 \\ 1 & 8 \end{pmatrix}$$

I'm
Always
Available!



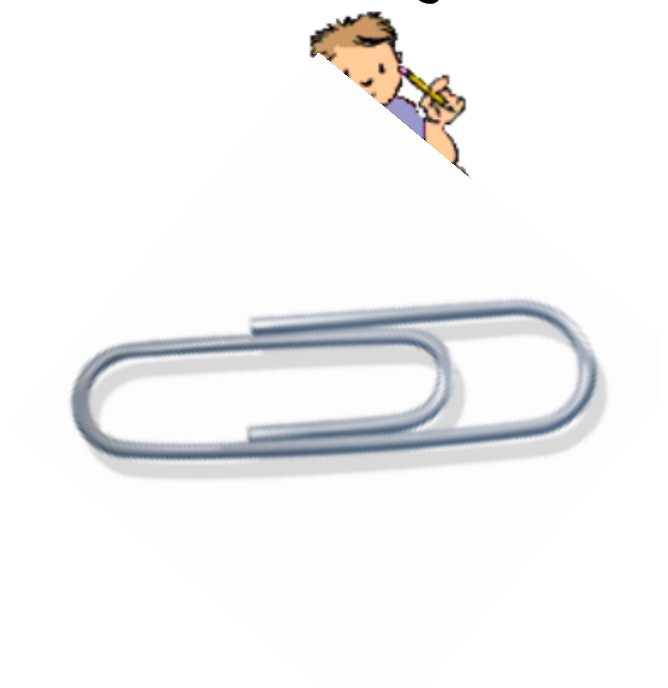
3.

$2 \times 5 \times 2 \times 5$

$$\begin{pmatrix} 2 & -9 & 10 & 55 & -9 \\ 0 & 1 & 4 & 2 & 8 \end{pmatrix} \begin{pmatrix} 1 & 5 & 0 & -4 & 7.8 \\ 6.8 & 5 & 11 & 47 & 0 \end{pmatrix}$$

Not Possible !!

*I'm going
to need
bigger paper
clips!*



4.

$$\begin{pmatrix} -2 & 0 & 1 & 3 \\ 0 & -4 & -2 & 1 \end{pmatrix} \begin{pmatrix} \hat{1} & \hat{2} & \begin{pmatrix} 1 \\ -2 \\ 5 \\ 4 \end{pmatrix} \\ 0 & 1 & -2 \\ 1 & 0 & 5 \\ 2 & -3 & 4 \end{pmatrix}$$

2 x 4 $\sqrt{4}$ x 3

$$\begin{pmatrix} \underline{-2+0+1+6} & \underline{-4+0+0-9} & \underline{-2+0+5+18} \\ \underline{0+0-2+2} & \underline{0-4+0-3} & \underline{0+8-10+4} \end{pmatrix}$$


$$\begin{pmatrix} 5 & -13 & 1 \\ 0 & -7 & 2 \end{pmatrix}$$

5.

$$(2 \quad 3 \quad 5 \quad 7) \begin{pmatrix} 5 \\ 0 \\ 2 \\ 0 \end{pmatrix}$$

$$1 \times (4 \sqrt{4} \times 1) \begin{pmatrix} 10 + 0 + 10 + 0 \end{pmatrix}$$
$$\begin{pmatrix} 20 \end{pmatrix}$$




$$\begin{pmatrix} 2 & 3 & 0 & 6 \\ 0 & 2 & 8 & 2 \\ 1 & 0 & 3 & 1 \\ 8 & 4 & 4 & 8 \\ 4 & 7 & 1 & 9 \end{pmatrix} \begin{pmatrix} 6 & 2 & 0 & 2 & 0 \\ 2 & 8 & 8 & 1 & 8 \\ 1 & 3 & 9 & 5 & 2 \\ 5 & 0 & 4 & 3 & 6 \end{pmatrix}$$

**What would
the entry for
r3c4 be in
the product?**

$$\begin{pmatrix} 2 + 0 + 15 + 3 \\ (20) \end{pmatrix}$$

