♥ Matrices ♥ (with thanks to Khan Academy)

① $A = \begin{bmatrix} -2 & 5 & 6 \\ 5 & 2 & 7 \end{bmatrix}$ A is a [3] x [2] matrix

(dimensions)

② (Transpose)

What is A^T? $A^T = \begin{bmatrix} -2 & 5 \\ 5 & 2 \\ 6 & 7 \end{bmatrix}$

③ Matrix addition

$B = \begin{bmatrix} -10 & 12 \\ -6 & 3 \end{bmatrix}$ $C = \begin{bmatrix} -1 & 4 \\ 22 & 7 \end{bmatrix}$

$B + C = \begin{bmatrix} -11 & 16 \\ 16 & 10 \end{bmatrix}$

④ Scalar multiplication

$D = \begin{bmatrix} -4 & -2 \\ 7 & 1 \end{bmatrix}$

$-3B = \begin{bmatrix} 12 & 6 \\ -21 & -3 \end{bmatrix}$

⑤ Matrix multiplication

a) $E = \begin{bmatrix} 4 & 1 \\ 2 & 3 \end{bmatrix}$ $F = \begin{bmatrix} 2 & 8 \\ 5 & 4 \end{bmatrix}$

$EF = \begin{bmatrix} 13 & 36 \\ 19 & 28 \end{bmatrix}$

b) $G = \begin{bmatrix} 4 & 1 \\ 2 & 3 \end{bmatrix}$ $H = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$

Is GH defined? nope

c) $I = \begin{bmatrix} 2 & 4 & 1 \\ 2 & 2 & 3 \end{bmatrix}$ $J = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$

Is IJ defined? yes