41/4.2 Basic Matrix Alsebra
Lo Matrix Addition
Lo Matrix Multiplication
Lo Scalar Multiplication

An nxm matrix is an array/table with nrowy and m-cols, where each cell has a number.

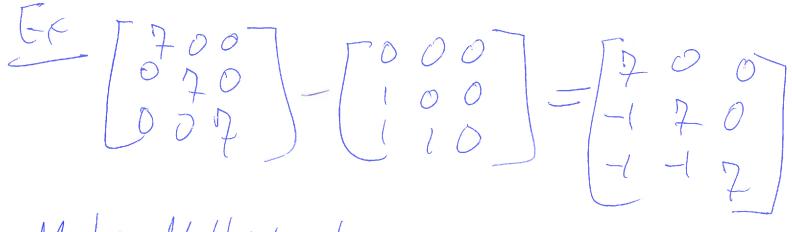
Ex [ol]

Matrices. Then $(A + B)_{ij} = A_{ij} + B_{ij}$

 $\begin{bmatrix} EX \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} + \begin{bmatrix} 8 & 9 \\ 0 & ii \end{bmatrix} = \begin{bmatrix} 9 & 11 \\ 13 & 15 \end{bmatrix}$

 $\begin{bmatrix} 2 & 12 \\ 3. & 5 & 7 \\ 11 & 13 & 17 \end{bmatrix} + \begin{bmatrix} 19 & 23 & 31 \\ 34 & 43 & 47 \\ 51 & 53 & 59 \end{bmatrix}$

= [9 24 33] 40 48 54 62 66 76]



Matrix Multiplication

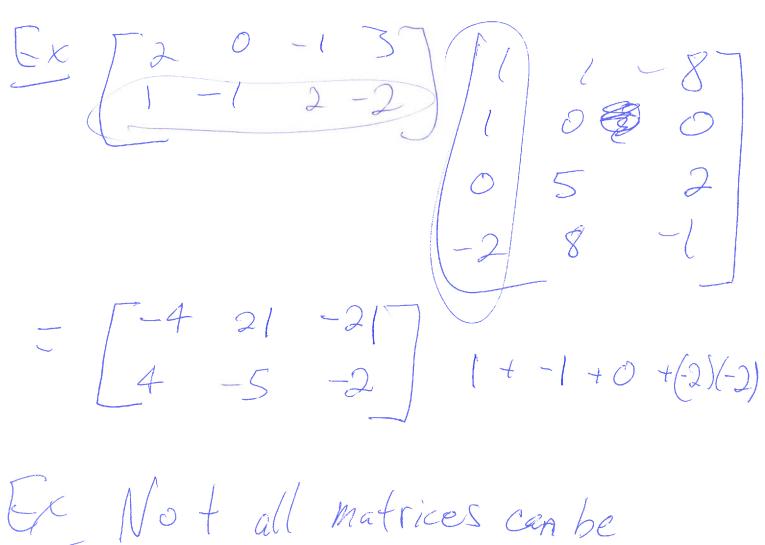
Given A NXM Matrix

B MXK Matrix

The product AB is NXK matrix

- 154

1.7 + 2.9 + 3.11 = 58 1.8 + 2.10 + 3.12 = 644.7 + 5.9 + 6.11 = 139



multiplied.

Ex Matrix Multiplication DOES NOT COMMUTEL A= / 1 -1 > (0 2) B= (5 -1) $AB = \begin{bmatrix} -2 & 1 \\ 10 & -2 \end{bmatrix}$ 3A = 3 -3 5 -2

AB + BA