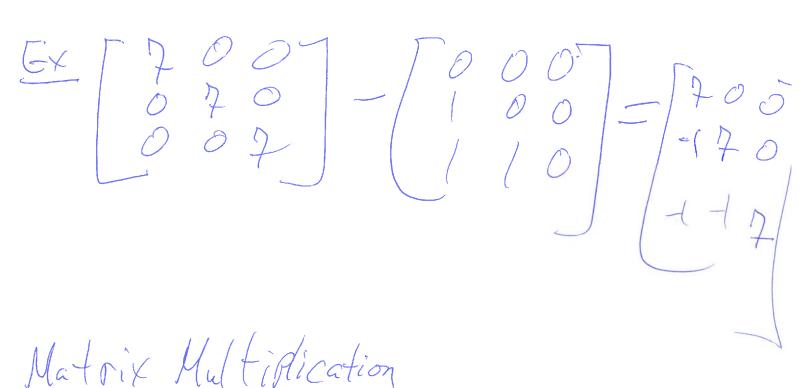
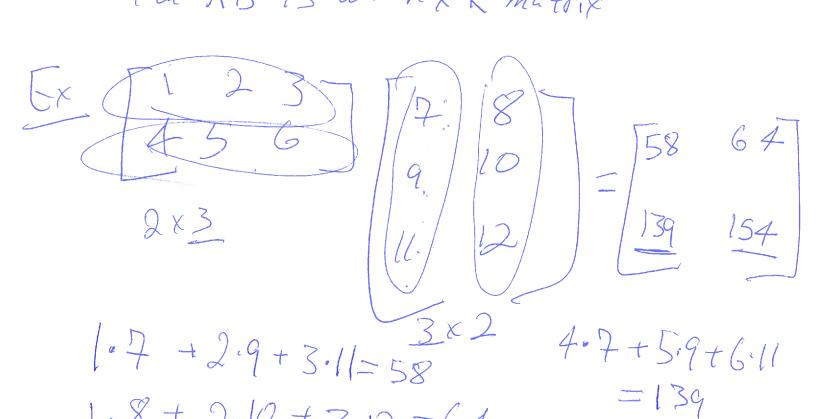
4.14.2 Basic Matrix Algebra Ly Matrix Addition La Matrix Multiplication 5 Scalar Multiplication Matrix Addition Let A, B be two nxm matrices. Then A + B is defined as follows.  $(A+B)_{ij} = A_{ij} + B_{ij}$  $\frac{G}{3} = \frac{19}{3} = \frac{19}{13} = \frac{19}{13} = \frac{19}{13} = \frac{19}{15} = \frac{19}{1$  $\begin{bmatrix} 5 \\ 5 \\ 3 \\ 5 \\ 7 \\ 11 \\ 13 \\ 14 \end{bmatrix}$   $\begin{bmatrix} 19 \\ 23 \\ 31 \\ 43 \\ 44 \\ 51 \\ 53 \\ 59 \end{bmatrix}$ - [19 24 337 40 48 54 62 66 76

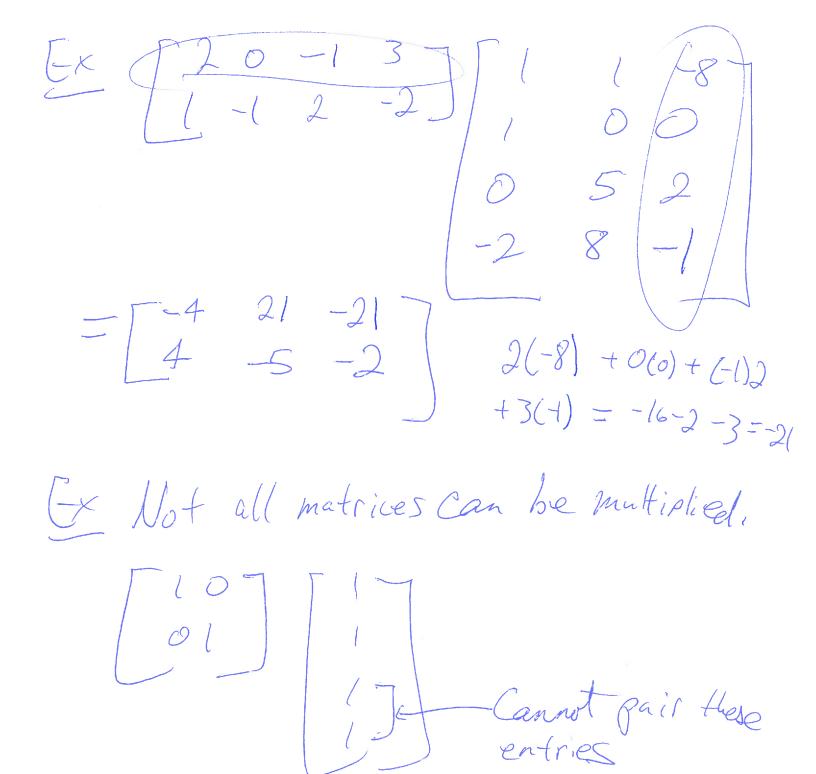
EX [12] + [356] 34] + [7911] Cannot Add the first matrix is 2x2, while the second matrix has dimensions 203. Scalar Multiplication  $\frac{E_{x}}{4} + \left[\frac{12}{3.5}\right] = \left[\frac{4}{12} + \frac{8}{20}\right]$ Ex 7/00007 0010 1000 1100  $= \begin{bmatrix} 7 & 0 & 0 \\ 0 & 7 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix} + \begin{bmatrix} 0 & 0 & 0 \\ 1 & 0 & 0 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 7 & 0 & 0 \\ 1 & 7 & 0 \\ 1 & 1 & 0 \end{bmatrix}$ 



Given A, an nxm Matrix
B, an mxk Matrix
Then AB is an nxk matrix



1.8+2.10+3.12=64



Et Matrix Multiplication JOES MOT COMMUTEL  $A = \begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}$   $B = \begin{bmatrix} 3 & 0 \\ 5 & -1 \end{bmatrix}$  $AB = \begin{vmatrix} -2 \\ 10 \end{vmatrix} = \begin{vmatrix} -2 \\ 5 \end{vmatrix}$  $\left(\frac{3}{5}\right)\left(\frac{1}{2}\right)$