Araded Horework 3 - Section / 2.3 A A A A A  $\begin{bmatrix}
7 & 5 & 0 \\
1 & -3 & 0 \\
-13 & 2 & 0
\end{bmatrix}$   $-\frac{1}{7}R_1 + R_2 \rightarrow R_2$ 7 5 0 0 13 R, 123 7R3 (7 5 0 0 ) 79 0 0 79 0 0 79 0 -24 x = -79 x = 79 -7 25 R2+123 7 R3  $\begin{bmatrix}
7 & 5 & | 0 \\
0 & -\frac{21}{7} & | 0
\end{bmatrix}$   $\begin{bmatrix}
7 & 5 & | 0 \\
0 & 0 & | 0
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20} \\
0 & 0 & | 0
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20} \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20} \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$   $\begin{bmatrix}
7 & 21 \\
7 & \times 2^{20}
\end{bmatrix}$ 

$$\begin{bmatrix}
-1 & 4 & 4 & | & 0 \\
0 & 9 & 15 & | & 0 \\
0 & 12 & 14 & | & 0
\end{bmatrix}$$

$$-6 \times_{3} = 0 \rightarrow \times_{5} = 0 \rightarrow 9 \times_{2} + 15(0) = 0 \rightarrow 12 = 0$$

$$-1 \times_{1} + 4(0) + 4(0) = 0 \rightarrow \times_{1} = 0$$

$$\begin{bmatrix}
1 \times 3 & 1 & 0 & | & 0 \\
5 & -2 & -1 & | & 0 \\
4 & -4 & -3 & | & 0
\end{bmatrix}$$

$$-\frac{1}{3} \times 3 = \frac{16}{5} \rightarrow 9 = -\frac{16}{11} \rightarrow -\frac{16}{11} \times_{2} + R_{3} \rightarrow R_{3}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
-\frac{1}{3} \times_{1} - 1 & | & 0 \\
0 & 0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
-\frac{1}{3} \times_{1} - 1 & | & 0 \\
0 & 0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
-\frac{1}{3} \times_{1} - 1 & | & 0 \\
0 & 0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{11}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

$$\begin{bmatrix}
3 & 1 & 0 & | & 0 \\
0 & -\frac{1}{11} & 0
\end{bmatrix}$$

→ 
$$8 \times_{1} + 1(6) = 0$$
 →  $\times_{1} = 0$ 
 $X_{1} + 1(6) = 0$  →  $X_{1} = 0$ 
 $X_{2} + 1(6) = 0$  →  $X_{1} = 0$ 
 $X_{2} + 1(6) = 0$  →  $X_{2} = 0$ 
 $X_{3} + 1(6) = 0$  →  $X_{4} = 0$ 
 $X_{501} + 1(6) = 0$ 

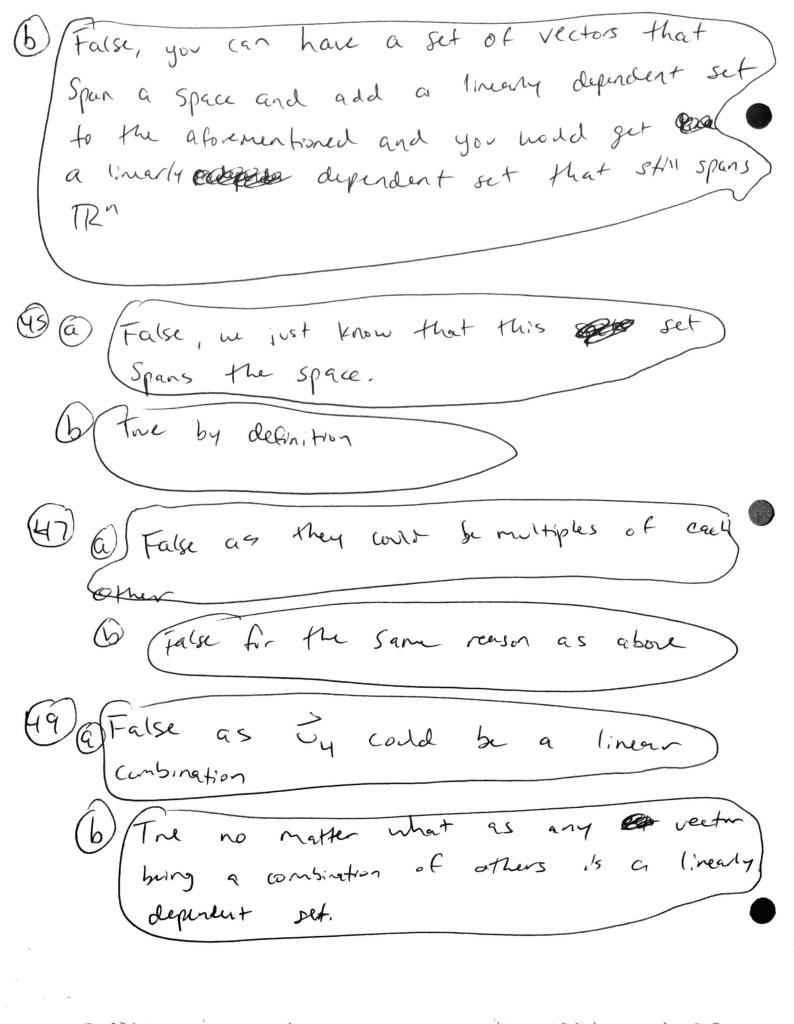
Not a view southern

Not a view southern

as the set of earations

are not linearly independent

and do not span IR3.  $\begin{pmatrix} 39 \\ 2 \end{pmatrix} \begin{pmatrix} 27 \\ 2 \end{pmatrix} \begin{pmatrix} 37 \\ 3 \end{pmatrix}$ COLUMN CONTRACTOR CONT (a) False, a set of vectors that are multiples of each other (an example of linear dependent would not span IR?



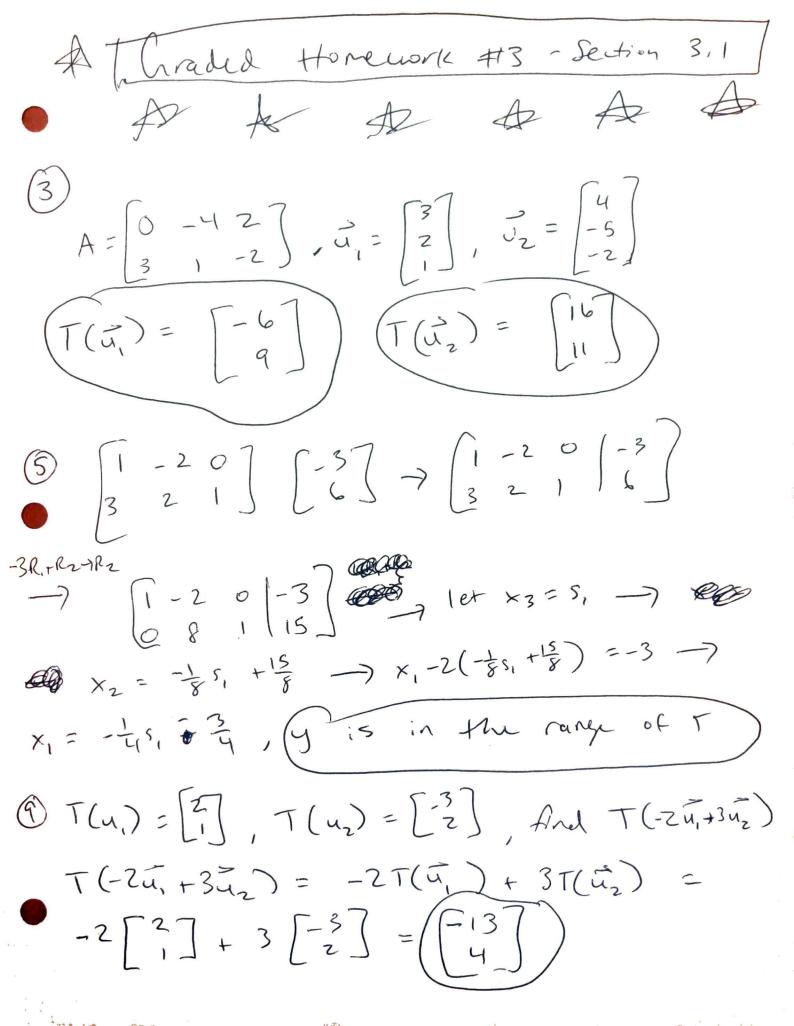
(51) (a) False by definition of linear independence

(b) The by definition

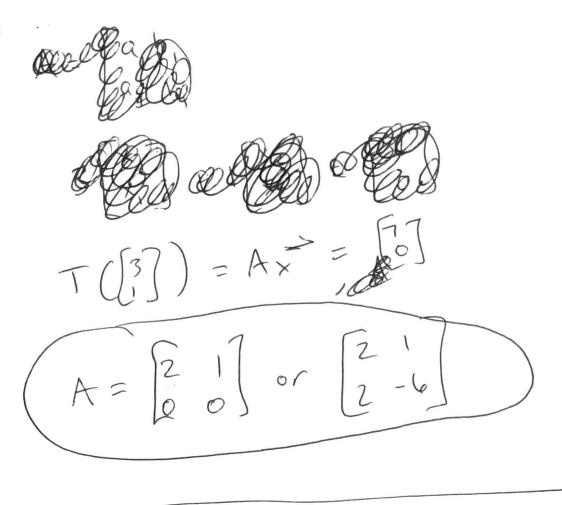
(53) (a) (a) Company of the only possible vectors that

(a, b, c are the only possible vectors that

(an be lineary independent.



 $(13) \left( A = \begin{bmatrix} 3 & 1 \\ -2 & 4 \end{bmatrix} \stackrel{\rightleftharpoons}{\times} = \begin{bmatrix} \times_1 \\ \times_2 \end{bmatrix} \right)$ (Is a linear transformation) a Not a linear transformation A= [-4 01] linear transformation -) A lacks column and row prosts. It does Not Spen IR3 and the its columns are not linearly independent. (T is reither one to one nor onte.)



(6) The by definition

a True by definition

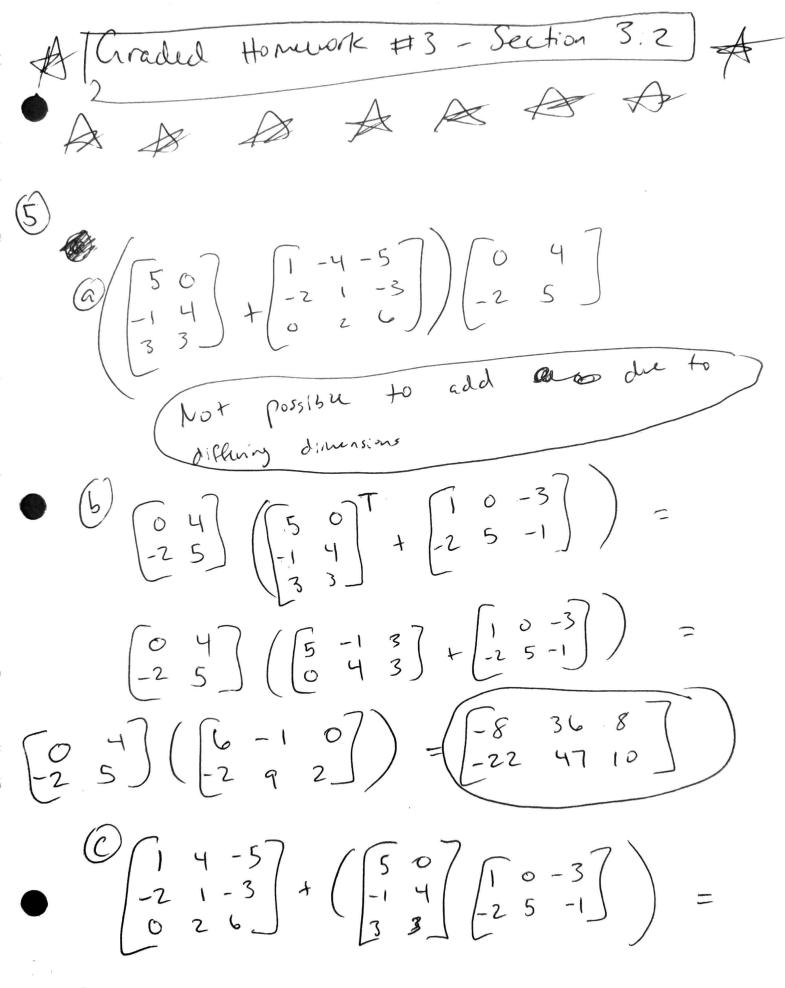
(b) The as the entire space reeds to be available for an onto veletionship.

(45)
(a) True as each T, and Tz output is united for F)

(b) Frue as you wild read equivalent pints in

cours and sous end the only way 4 do

that is a square natrix.



$$\begin{pmatrix}
1 & 4 & -5 \\
-2 & 1 & -3 \\
0 & 2 & 6
\end{pmatrix}
+
\begin{pmatrix}
5 & 0 & -15 \\
-9 & 20 & -1 \\
-3 & 15 & -12
\end{pmatrix}
=
\begin{pmatrix}
6 & 4 & -207 \\
-11 & 21 & -4 \\
-3 & 17 & -6
\end{pmatrix}$$

(f) 
$$2b-a=3$$
  
 $3b+2=5$   $\rightarrow -b+2a=-8 \rightarrow a=-1$   
 $-b+2a=-8$   
 $-b+2a=-8$   
 $-13=c$   
 $5$   $3b+2=5 \rightarrow b=1 \rightarrow a=-1$   
 $2(1)-(-1)=3 \rightarrow 3=3$ 

Solton:

$$(a=-1, b=1, c=-13)$$

(9) 
$$2a + 0 - 2c = 4$$
  
 $6 + 0 + 4c = -6$   
 $-a + 3b - 2 = d$   
 $-3 - 2b + 4 = -5$   
 $3a = -1 - 7b = 3$ 

$$\begin{array}{c}
\boxed{11} \\
\boxed{5} \\
-10
\end{array}$$

$$\begin{array}{c}
\boxed{5} \\
\boxed{6} \\
\boxed{6} \\
-10
\end{array}$$

$$\begin{array}{c}
\boxed{5} \\
\boxed{6} \\
\boxed{6} \\
-10
\end{array}$$

$$\begin{array}{c}
\boxed{5} \\
\boxed{6} \\
\boxed{6}$$

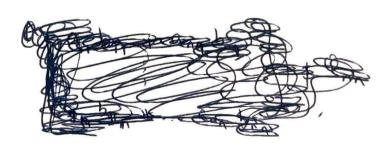
$$\begin{array}{c}
\left(A = 2\right) \\
\left(A + B^{2}\right) \left(BA - A^{2}\right) \\
\left(B^{2}A\right)
\end{array}$$

$$\begin{array}{c}
\left(A + B^{2}\right) \\
\left(BA - A^{2}\right) \\
\left(A + B^{2}\right) \\
\left(A$$

$$\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} -1 & -1 \\ 1 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$







AB + Onn -) (a11 b11 + ... + 92n b11) / does not necessarily near that + Om Example: Tet  $A = \begin{bmatrix} 2 & 1 \\ 3 & 4 \end{bmatrix}$  and  $B = \begin{bmatrix} -2 & -1 \\ -3 & -4 \end{bmatrix}$  $A + B = O_{22}$  but  $AB = \begin{bmatrix} -7 & -6 \\ -18 & -19 \end{bmatrix}$ (b) (True as (A+BT) = AT+BT = AT+B (a) The by definition (6) (False, it's possible to get a zero matrix @ True by definition. b) (Faise)