Ivan Way 1 row equired - snap two rows - Multiply by non zer Scalar

- Aldis a multiple of one row 9/0

to another vow. A and B are mxn natrices over the field oft; It Say lut B is vone Equinalet to A it B F, WC eleptery new operation. A by a finite seguence of by a segmence of moves Elepetry vew aperation.

A row swap can be accomplished by a segmence of mores of the other two types...

Show - multiply a row by a non-zero Scalar of the other two types...

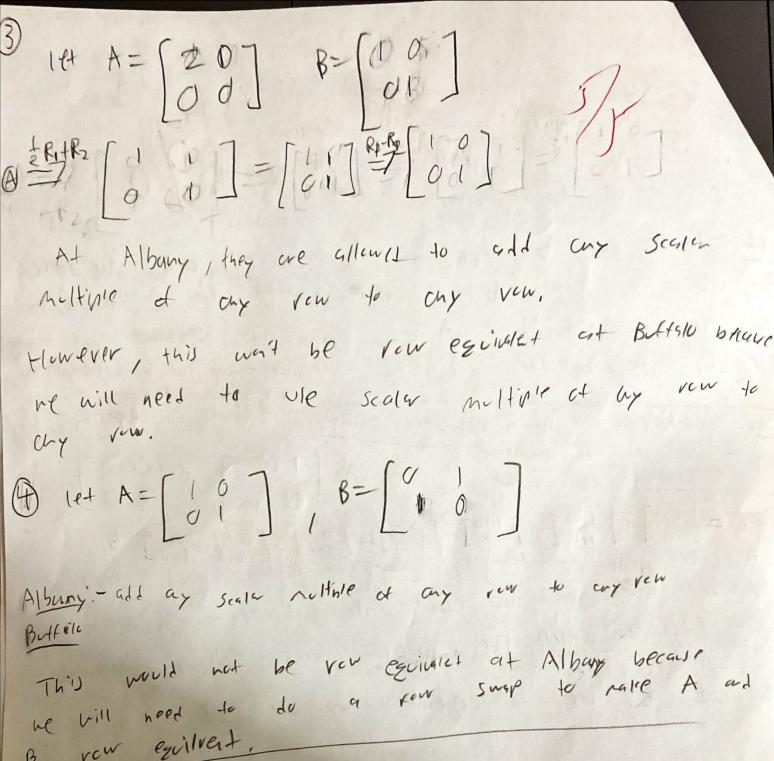
1et A= [10] B=[0]

1et A= [10]

1et A We can multiply low by Non 2800 SCalar and 4ds you to grother But we can't make it row equivalent by our définition uniers ve personn vous surspping A and B we row equivalent by an det, 2) Bing: all scala matiple to any row

But A at B will never be row equivalet (find let)

allow one swaps at multiply by non zero scalar.



B row equilvent.

For equiver to be an equivalent to itself.

(1) Reflexibly: Every matrix is your equivalent to B, that B is equivalent to B and B is equivalent to B and B is equivalent to B and B is found to B and B is found.

(2) Synnetry: A is your equivalent to B and B is found.

(3) Transitive: A is your equivalent to B and B is found.

Bingham ten row equiverer is not symmetric because We cannot go B to A without dois scalar multiplications or row snaps (01) (24)

A be on NX n (Spine). MATINE OVE THE feld An nxn matrix B such that BA=I is called a 1814 ere of A; on nxn natrix B such test AB= I 1 alles vight inverce of A. If AB=BA=I, the B'I called a for sites inverse of A and A is invertible  $(P + A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}$   $B = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$  $AB=I: \begin{bmatrix} t & 0 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} t & 0 & 0 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 \end{bmatrix} = I \quad bood.$   $2x3 \begin{bmatrix} 0 & 3x2 \end{bmatrix} \begin{bmatrix} 0 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix} = I \quad bood.$  $BA=I: \begin{bmatrix} 10 \\ 01 \\ 00 \end{bmatrix} \begin{bmatrix} 100 \\ 010 \end{bmatrix} = \begin{bmatrix} 100 \\ 010 \\ 000 \end{bmatrix} = \begin{bmatrix} 100 \\ 010 \\ 000 \end{bmatrix}$ 3x3 Let [[0]]= 1-0=1 This meas A
is invetible,
size det #0 Therefore A has a jeft invere but no right invere You've checked that A is not a right inverse of B, but how do you know some other matrix wouldn't work? 3/5

A cannot be reduced to row reduced echills form because the first vow is not 1,

Therefore, if we let R=2 (be an vivy of intges), and the rem-N=[24], then we can't make now-equivalent to a veduced echelon matrix, because we cont you reduced it forther.

1 A matrix ove 2 is in integer vow reduced echelle form; - If a row is not 0 and the leading (lettrest) entry is - The leading entry of the next vew in to the visht of the leading entry of the previous row above,

- All zeros at bottom last row,

- The leading entry of each vin is the greatest coming divisor (600) et all the elevation à that vous

- All other entire is the column of a pinet must be intere multiples of that pinet

- The leady coeffict in each vew is the smallest position the von entry.