L> coefficient motors

## Augmented Motors form [A[b] often lazy ppl. [3 2 | 3] furget the bar.

## Eleventary Ron Operations

Each row op. preserves the Solution set: Has some over all Jolution before baffar operation.

- 1) Suop any 2 rows eg. R, es R,
- 2) Multiphythy non-zero combant

  1 row

  1 R2-> 3R2

3) Take a rulliple of row, add it to another.

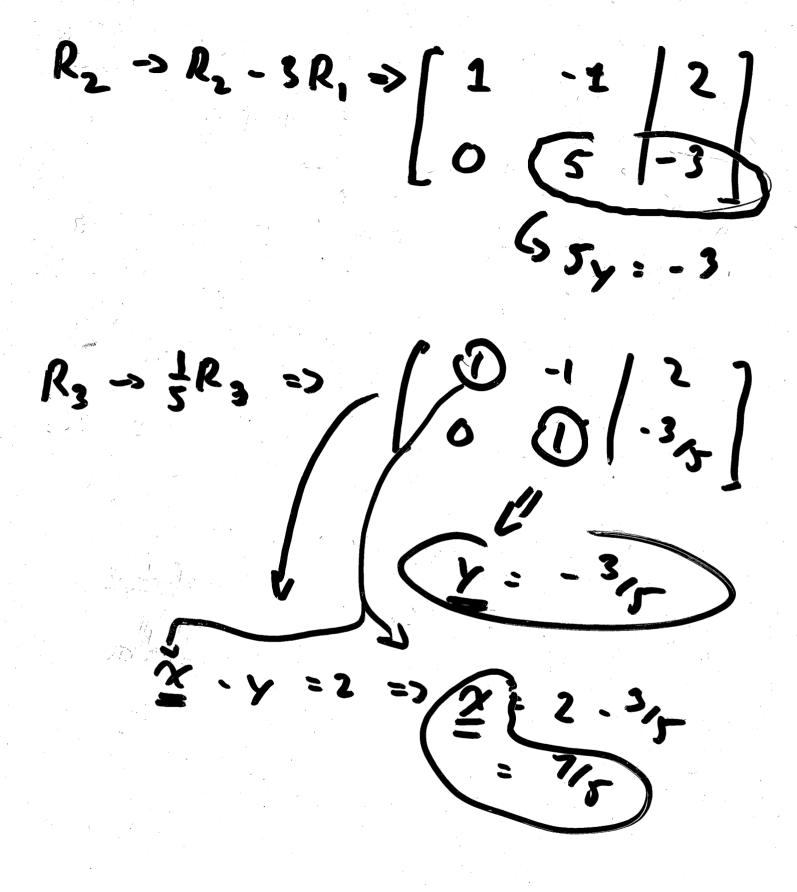
R, -> R, + 2R2

i'c Take row 1 b replace with

Pour 1 added to 2 Row 2

eq. Ops in Action

3x + 2y = 3 =>  $\begin{bmatrix} 3 & 2 & | & 3 \\ 2 & -1 & | & 2 \end{bmatrix}$ 



## Gaussian Eliaination

Perform row operations to reduce our bugmented matrix into
Row Eschelar Form (RE)

What is Row E, Form ?

- 1) each non-zero row

  First hon-zero entry as 1

  ic. "I cad in 1"
- 2) Each row has it's leaving 1. to right of row above.

a) All mentes rows at the botton

[01-12] 

eg. [OIO] Put RE.

Again: Gausian Glimination

1) Put syster into Aug. Matrix
2) Use Row Ope to put into
RE Form

1 Stort from botton up to buch - substitute.

$$\frac{1}{2} = \frac{1}{3} = \frac{1}$$

$$\begin{cases} 3x + 55 = 5 \\ 5x + 3 + 5 = 3 \end{cases}$$

So be this System!

 $\begin{bmatrix} 0 & -1 & 0 & -1 & 3 \\ 1^2 & 1 & 1 & -1 & 3 \\ 1 & 3 & 0 & 2 & -1 & 2 \end{bmatrix} R_2 \rightarrow R_2 - 2R_1$ then  $R_3 \rightarrow R_3 - 3R_1$ ('kill" 1st column below leading 1!)  $= \begin{bmatrix} 0 & -1 & 0 & 1 \\ 0 & 0 & 1/3 \\ 0 & 2 & 1 \\ -1 & 1 \end{bmatrix} R_3 - 3 R_2$ 2) [ 040 0 1/3 ] RE 10 1/3 ] RE 10 1/3 ]

Last eqn: 
$$(2 = -2)$$

2 and eqn:  $(2 = -2)$ 
 $(-2) = (1)$ 
 $(-2) = (1)$ 
 $(-2) = (1)$ 
 $(-2) = (1)$ 
 $(-2) = (1)$ 
 $(-2) = (1)$ 

Gaussian Eliainatory

(1) 30 | 1 | 2 | 3 | 2 | 3 | 3 | Solve Gausier Elisination Solution R2-0 R2-2R, & then R3-0R3-3R, (Nuk: each changes a different rum, b does out depend. on results 4 offe. [ 0 - 7 1 0 ] R3 - R2

(bet it own Lett 4!)

Last 
$$E_{qq}$$
 $0 = 0$  Whoa!

 $2 = 0$ 
 $y = \frac{1}{7} = 0$ 
 $y = \frac{1}{2} = 0$ 

Let Z= t, a parameter

(ab solution) porwetic tyn. 4