

21

$$F = \overline{(A+B)} \cdot \overline{(B+C)}$$

$$= \overline{A} \cdot \overline{B} \cdot \overline{B} \cdot \overline{C}$$

$$= \overline{A} \cdot \overline{B} \cdot \overline{C}$$

$$= \overline{A} + \overline{B} + \overline{C}$$

$$= A + B + C$$

NOT

De Morgan's theorem

$$\overline{A+B} = \overline{A} \cdot \overline{B}$$

$$\overline{A \cdot B} = \overline{A} + \overline{B}$$

$$A \cdot A = A$$

$$\Rightarrow \overline{A \cdot B \cdot C} = \overline{A} \cdot \overline{B} \cdot \overline{C}$$

~~XOR~~ → 2 ✓

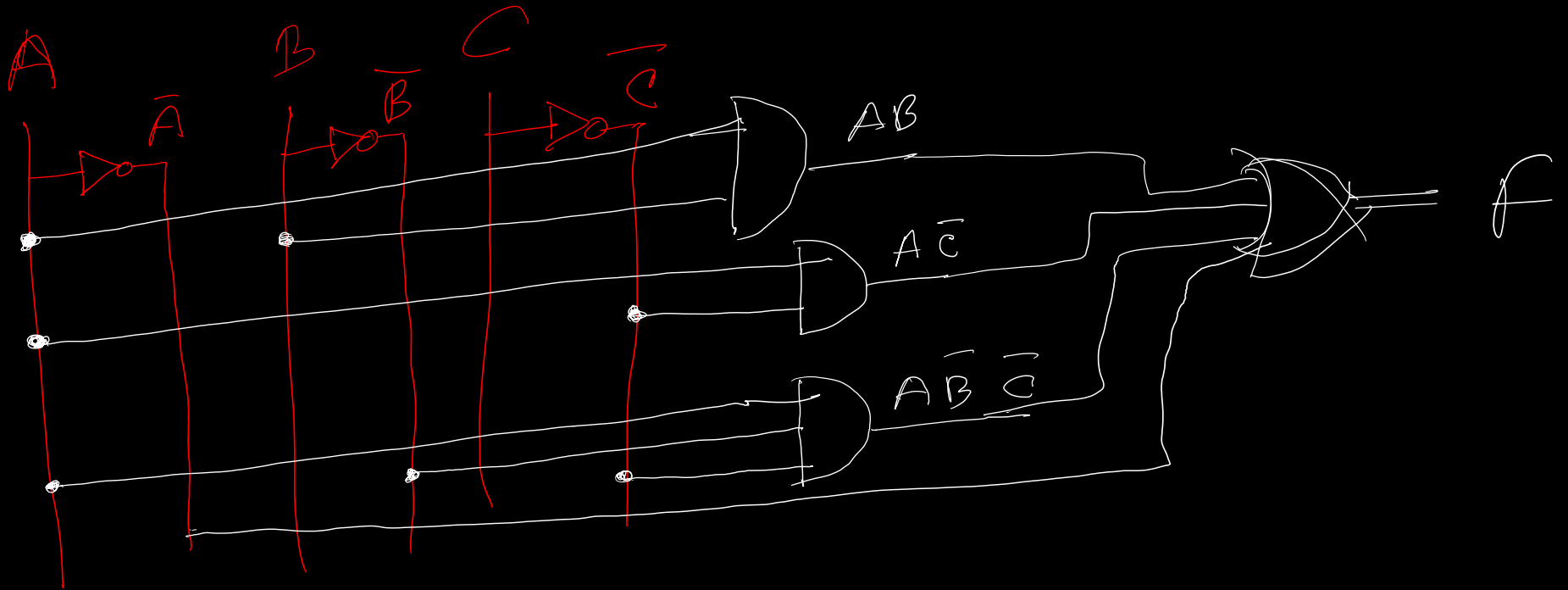
→ AND → 1 ✓

→ NOT → 3 ✓



Eqn  $\rightarrow$  Ckt

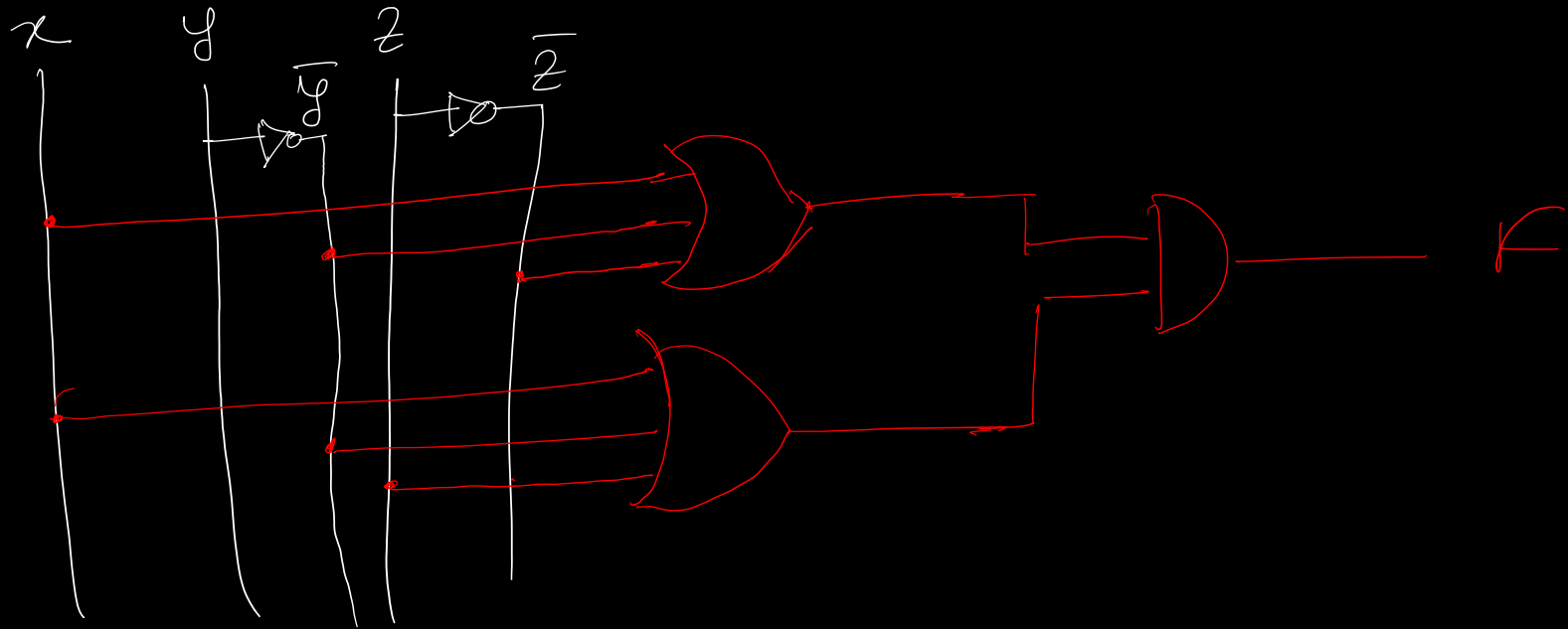
$$F = \overline{A} + \underline{\underline{AB}} + \underline{A\overline{C}} + A\overline{B}\overline{C}$$



$$F = (x + \bar{y} + \bar{z}) \cdot (x + \bar{y} + z)$$

m (y) (z)

11





~~AND~~ + ~~OR~~ =

NOR / NAND

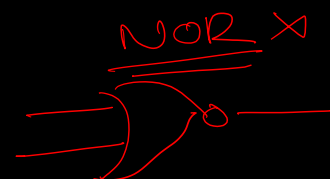
$xy + \bar{x}z + yz$ . Draw ckt using only NOR gate.

$\Rightarrow$  Eqn modify

NOR  $\rightarrow$  NOT  $\rightarrow$  OR  $\rightarrow$  AND  $\times$

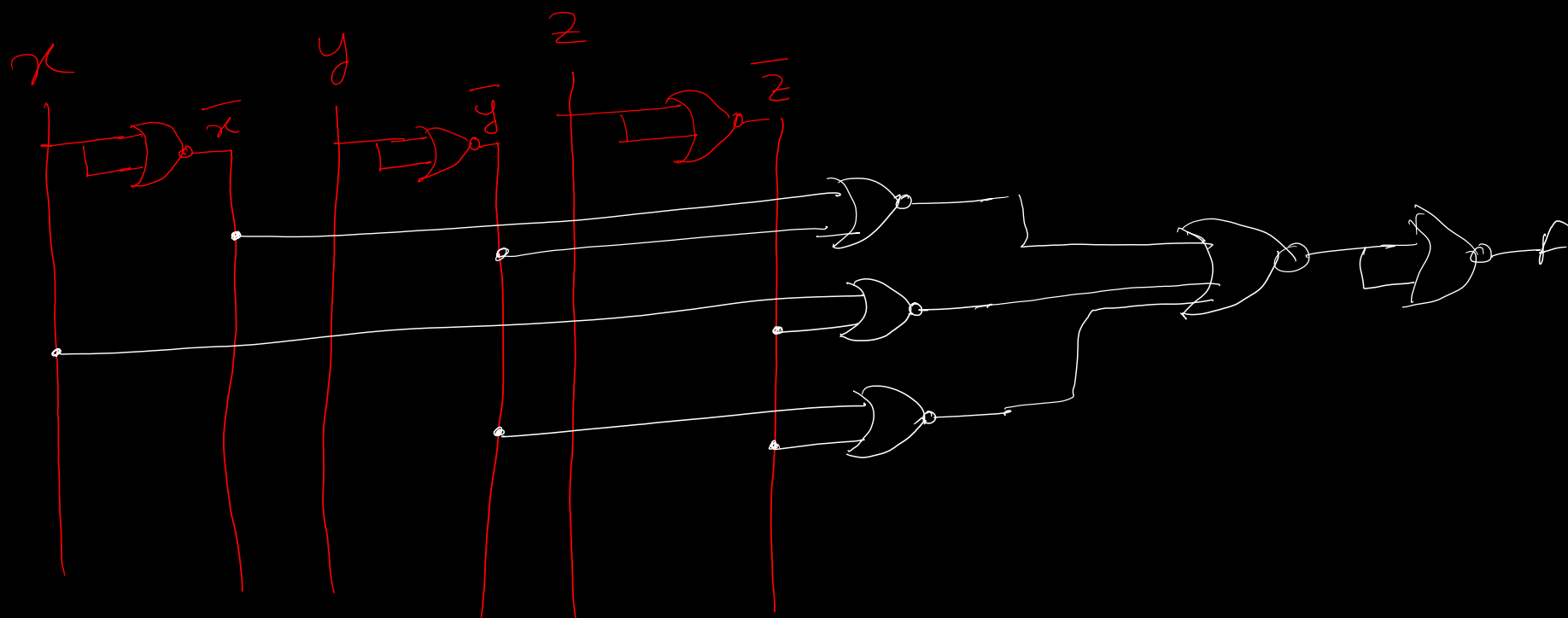
$$F = \overline{\overline{xy}} + \overline{\overline{xz}} + \overline{\overline{yz}}$$

NOR  $\times$



$$= \overline{x+y} + \overline{x+z} + \overline{y+z}$$

$$= \overline{x+y} + \overline{x+z} + \overline{y+z}$$



$F = xy + \bar{x}z + yz \rightarrow$  અવરોધ NAND ગેટ દ્વારા રજીસ્ટ્રેશન

$$xy + \bar{x}z + yz$$

જો,

NOT- AND ✓

(OR) X

$$= \overline{xy} \cdot \overline{\bar{x}z} \cdot \overline{yz}$$

$$\overline{A+B+C} = \bar{A} \cdot \bar{B} \cdot \bar{C}$$

