

$x = \text{John is an engineering student}$
 $= \{T, F\} = \text{values}$

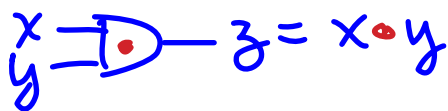
$y = \text{John is 20 years old} = \{T, F\}$

AND:

Equation

$$z = x \cdot y$$

Circuit



$0 = F$
 $1 = T$ } Truth Table:

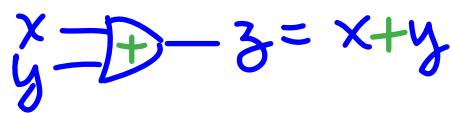
x	y	$z = x \cdot y$
0	0	0
0	1	0
1	0	0
1	1	1

OR:

Equation

$$z = x + y$$

Circuit



Truth Table:

x	y	$z = x + y$
0	0	0
0	1	1
1	0	1
1	1	1

NOT:

Equation

$$z = \bar{x} = x'$$

Circuit



Truth Table

x	$\bar{x} = z$
0	1
1	0