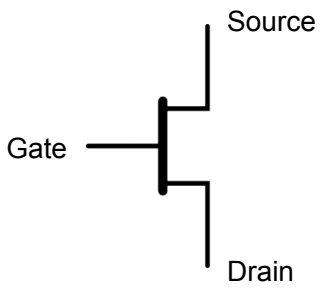
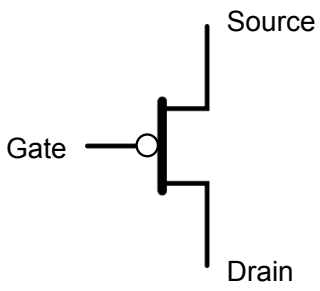
What is Digital

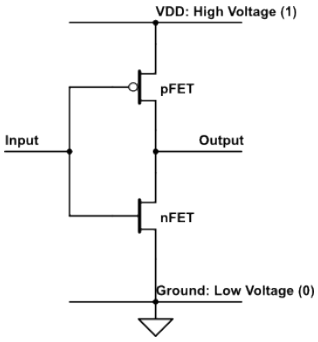
Transition from Analog ➡ Digital

Transistors

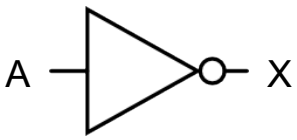




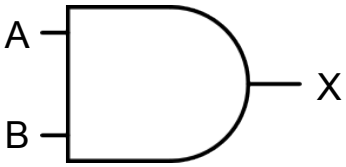
Transistors - Digital Circuits



Logic Gates

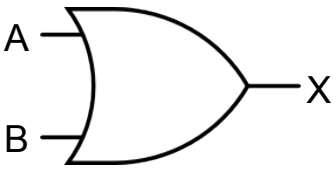


A	X

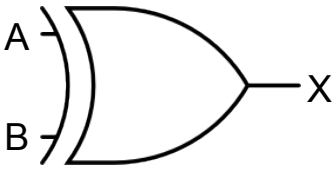


A	B	X

Logic Gates

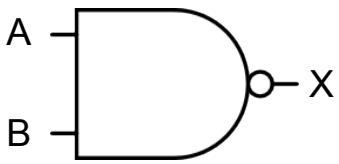


A	B	X

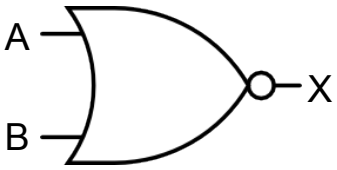


A	B	X

Logic Gates

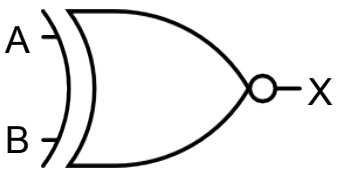


A	B	X



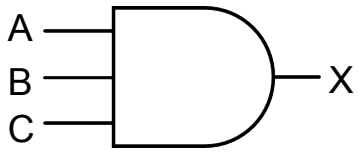
A	B	X

Logic Gates



A	B	X

Logic Gates

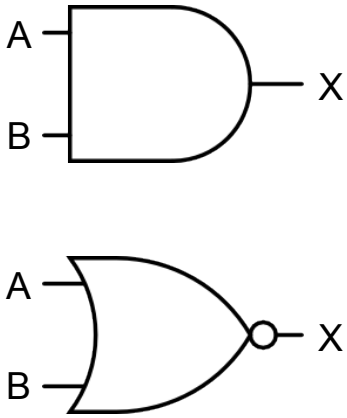


A	B	C	X
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

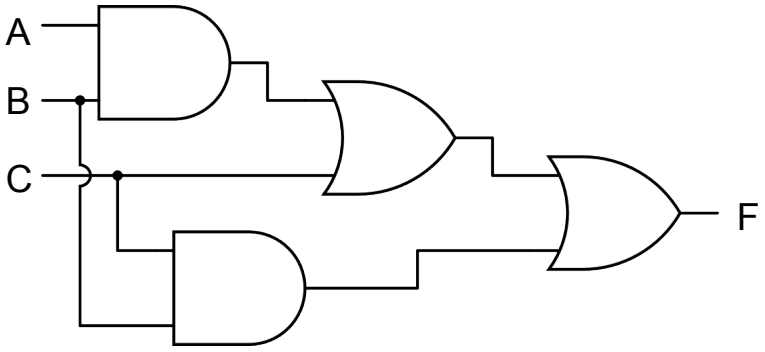
Transistor Count

Gate	Transistors
NOT	
AND	
OR	
XOR	
NAND	
NOR	
XNOR	

AND / OR Conversion

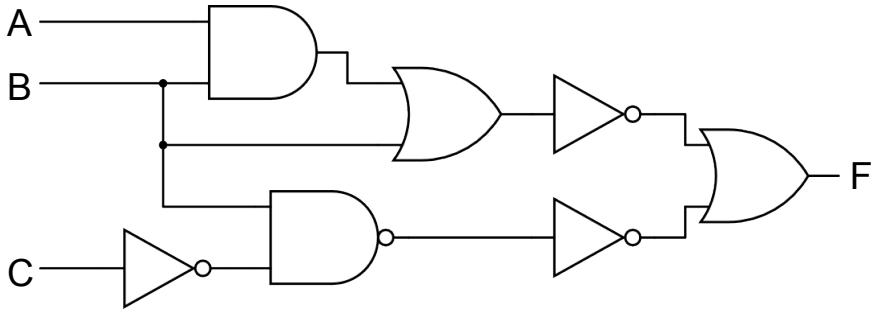


Logic Circuits



A	B	C	F
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

Combine Inverters



Digital Circuits

Combinational Circuits

Digital Expressions

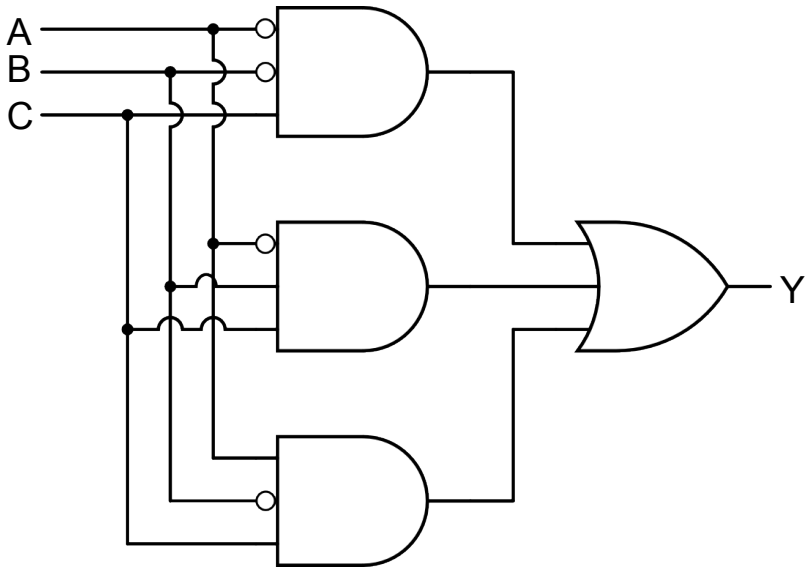
Sum of Products (SOP)

Sum of Products (SOP)

A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

Y =

Sum of Products (SOP)



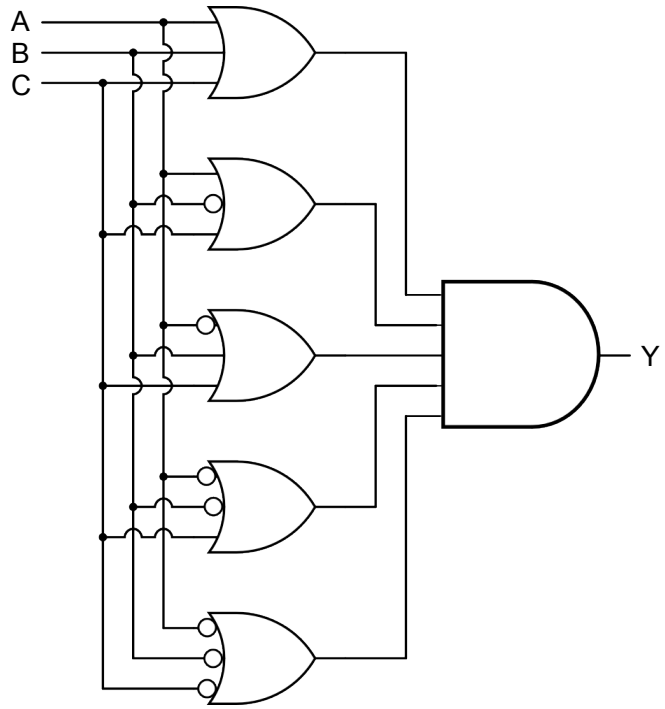
Product of Sums (POS)

Product of Sums (POS)

A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

Y =

Product of Sums (POS)



Minterms / Maxterms

Term	ABC	Minterm	Maxterm	F
0	000			0
1	001			1
2	010			0
3	011			1
4	100			0
5	101			1
6	110			0
7	111			0

SOP / POS Terms