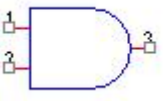
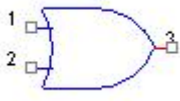
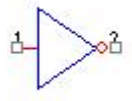
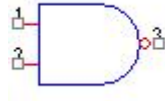
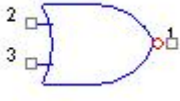
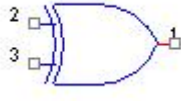


Logic Gates:

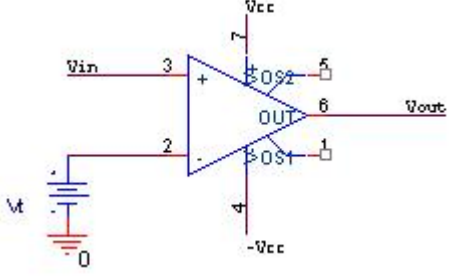
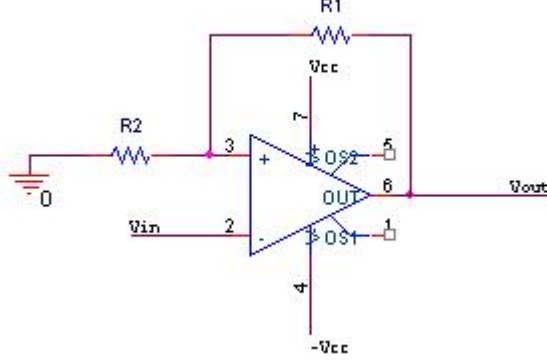
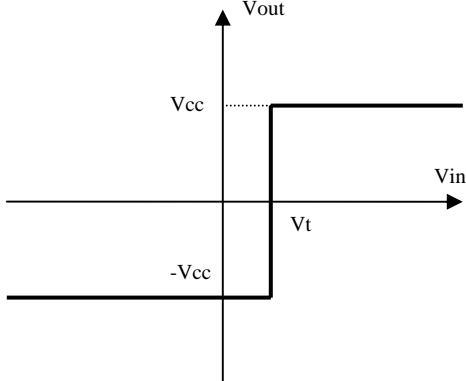
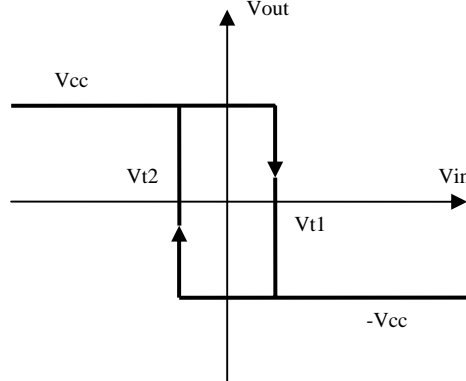
AND			OR			NOT	
$Y = A \bullet B$			$Y = A + B$			$Y = \bar{A}$	
							
A	B	Y	A	B	Y	A	Y
0	0	0	0	0	0	0	1
0	1	0	0	1	1	1	0
1	0	0	1	0	1		
1	1	1	1	1	1		

NAND			NOR			XOR		
$Y = \overline{A \bullet B}$			$Y = \overline{A + B}$			$Y = A \oplus B$		
								
A	B	Y	A	B	Y	A	B	Y
0	0	1	0	0	1	0	0	0
0	1	1	0	1	0	0	1	1
1	0	1	1	0	0	1	0	1
1	1	0	1	1	0	1	1	0

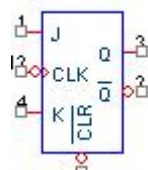
Logic identities:

<p>Properties of Boolean operations:</p> $A \bullet 0 = 0$ $A + 0 = A$ $A \bullet 1 = A$ $A + 1 = 1$ $A \bullet A = A$ $A + A = A$ $A \bullet \bar{A} = 0$ $A + \bar{A} = 1$ $\overline{\overline{A}} = A$	<p>Commutative, distributive and associative properties:</p> $A \bullet B = B \bullet A$ $A + B = B + A$ $A \bullet (B + C) = A \bullet B + A \bullet C$ $A + B \bullet C = (A + B) \bullet (A + C)$ $A \bullet (B \bullet C) = (A \bullet B) \bullet C$ $A + (B + C) = (A + B) + C$ $A + A \bullet B = A$ $A \bullet (A + B) = A$ $A \bullet (\bar{A} + B) = A \bullet B$ $A + \bar{A} \bullet B = A + B$ $\bar{A} + A \bullet B = \bar{A} + B$ $\bar{A} + A \bullet \bar{B} = \bar{A} + \bar{B}$
<p>DeMorgan's Laws:</p> $\overline{A \bullet B} = \bar{A} + \bar{B}$ $\overline{A + B} = \bar{A} \bullet \bar{B}$	

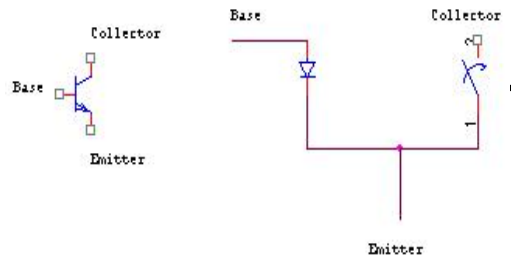
Comparator and Schmitt Trigger:

Comparator	Schmitt Trigger
	
	
	$V_{t1} = -V_{t2} = \frac{R2}{R2 + R1} V_{cc}$

Flip-flops:

JK Flip-flop					
					
\overline{CLR}	J	K	CLK	Q_{n+1}	\overline{Q}_{n+1}
0	x	x	x	0	1
1	0	0	↓	Q_n	\overline{Q}_n
1	0	1	↓	0	1
1	1	0	↓	1	0
1	1	1	↓	\overline{Q}_n	Q_n

Transistors:



- Switch is closed when diode is on
- Switch is open when diode is off