Logic Gates

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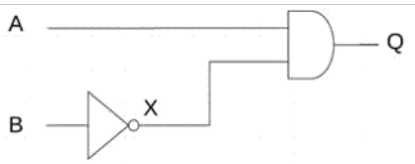
Gates

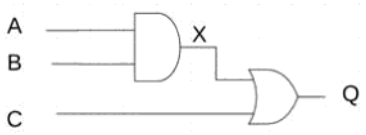
Boolean Operator	Gate
AND	
OR	
NOT	

1 Complete the truth table to describe the circuit



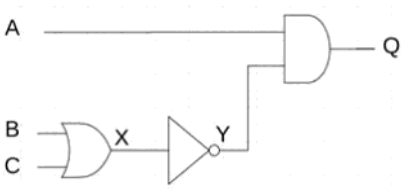
A	B	X	Q
0	0		
0	1		
1	0		
1	1		

2 Complete the truth table to describe the circuit



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

3 Complete the truth table to describe the circuit



A	B	C	X	Y	Q
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

For the following, use www.lucidchart.com to create diagrams

4	Draw an AND gate	
5	Draw an OR gate	
6	Draw a NOT gate	
7	Draw a circuit to represent the following expression **NOT (A OR B)**	
8	Draw a circuit to represent the following expression **A OR B AND C**	

9	Draw a circuit to represent the following expression **A OR B AND NOT C**	

10 Building Circuits

A logic circuit is being developed for an automatic door system:

- The automatic door has two sensors, one on either side of the door, sensor F and sensor B. The door opens when either of thes e sensors is activated.
- The door system can also be turned on/off using a manual switch, S. The door will not open unless S is on.
- The output from this logic circuit, for whether the door is open or not, is D.

a) Complete the logic circuit diagram for this system:

b) Write down the boolean expression for this: