

Boolean Logic Worksheet

1. Complete the following truth table.

A	B	AND	OR	XOR	NOT	NAND	NOR
0	0						
0	1						
1	0						
1	1						

2. Complete the following truth table for the Boolean expression

$$\mathbf{A \text{ AND } (B \text{ OR } A)}$$

A	B	(B OR A)	A AND (B OR A)
0	0		
0	1		
1	0		
1	1		

3. Complete the following truth table for the Boolean expression

$$\mathbf{NOT \ A \ AND \ B \ XOR \ A}$$

A	B	NOT A	NOT A AND B	NOT A AND B XOR A
0	0			
0	1			
1	0			
1	1			

4. Create a truth table for the Boolean expression

$$\mathbf{A \ NAND \ (B \ NOR \ A)}$$

5. Complete the following truth table for the Boolean expression

$$(A \text{ XOR } B) \text{ OR } (A \text{ NAND } C)$$

A	B	C	(A XOR B)	(A NAND C)	OR
0	0	0			
0	1	0			
1	0	0			
1	1	0			
0	0	1			
0	1	1			
1	0	1			
1	1	1			

6. Create a truth table for the following scenario.

Jim will play soccer with his friends if he can find his soccer shoes and they still fit or he can borrow money from his parents to buy a new pair.

7. Create a logic diagram for the following Boolean expression.

$$(A \text{ AND } B) \text{ OR } B$$

8. Create a logic diagram for the following Boolean expression.

$(A \text{ OR NOT } B) \text{ OR } (A \text{ NAND } B)$

9. Create a logic diagram for the following Boolean expression.

$A \text{ OR } (A \text{ XOR } B)$

10. Create a logic diagram for the following Boolean expression.

$A \text{ XOR } B \text{ OR } B \text{ AND } C$