

Homework #10
Number Systems, Boolean Algebra and Logic Gates

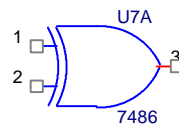
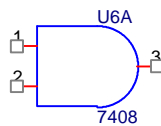
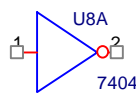
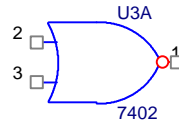
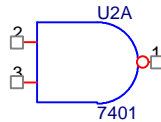
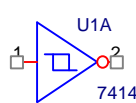
1. Number Systems: Convert the decimal numbers to binary and vice-versa (do not look them up in the table.):

| Binary | Decimal |
|--------|---------|
| 0101 | |
| 0111 | |
| | 10 |
| | 12 |

2. Boolean Algebra: Determine which boolean operation is represented by the following table:

| B | A | Result |
|---|---|--------|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

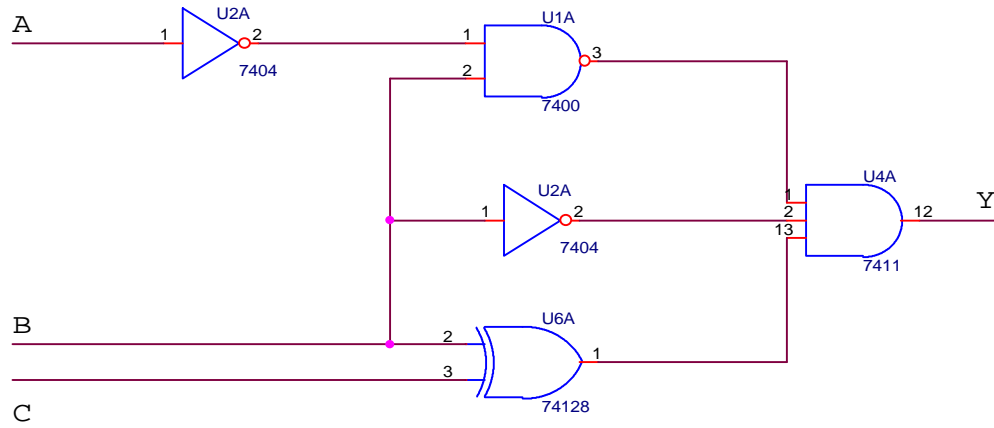
3. Logic Gates: What kind of logic gate is each of these devices?:



4. Boolean Algebra: Draw the circuit for this Boolean expression

$$Y = \overline{(\overline{A} + B)C}$$

5. Fill in the truth table for the circuit below.



| C | B | A | Y |
|---|---|---|---|
| 0 | 0 | 0 | |
| 0 | 0 | 1 | |
| 0 | 1 | 0 | |
| 0 | 1 | 1 | |
| 1 | 0 | 0 | |
| 1 | 0 | 1 | |
| 1 | 1 | 0 | |
| 1 | 1 | 1 | |