**HW2**

1. Prove the identity of each of the following Boolean equations, using algebraic manipulation:
2. Simplify the following Boolean expressions to expressions containing a minimum number of literals:
3. Using DeMorgan’s theorem, express the function
   1. with only OR and complement operations.
   2. with only AND and complement operations.
4. Obtain the truth table of the following functions, and express each function in sum-of-minterms and product-of-maxterms form:
5. For the Boolean functions and , as given in the following truth table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **X** | **Y** | **Z** | **E** | **F** |
| 0 | 0 | 0 | 1 | 0 |
| 0 | 0 | 1 | 0 | 1 |
| 0 | 1 | 0 | 1 | 0 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 | 1 |
| 1 | 0 | 1 | 0 | 0 |
| 1 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 0 |

* 1. Express and in sum-of-minterms and product-of-maxterms algebraic form
  2. Draw the logic diagram of E and F with sum-of-minterm