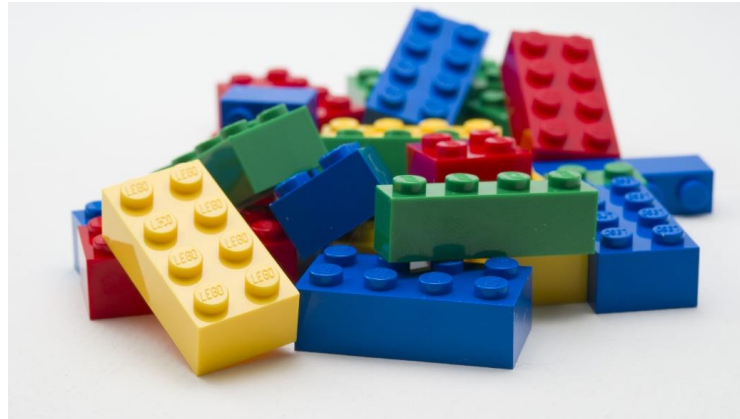




Quiz 2: Combinational Digital Circuit



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Problems

Problem 1: Millie has a digital design problem she is working on. She needs a logic circuit that will implement the function defined by the truth table right.

Your Job:

- a) Determine the Boolean function represented by this truth table.
- b) Design a two layer (AND/OR) implementation for your Boolean function and draw the circuit.

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

Problem 2: Use a Karnaugh map to minimize the following SOP expression:

$$\overline{B}\overline{C}\overline{D} + \overline{A}\overline{B}\overline{C}\overline{D} + A\overline{B}\overline{C}\overline{D} + \overline{A}\overline{B}C\overline{D} + A\overline{B}C\overline{D} + \overline{A}\overline{B}C\overline{D} + \overline{A}B\overline{C}\overline{D} + A\overline{B}C\overline{D} + \overline{A}\overline{B}C\overline{D}$$