Assignment 11: Propositional Logic and Quine McCluskey

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1 Problem 3

1.1 First Loop

1. * 0000
2. * 0001
3. * 0010
4. * 0101
5. * 0110
6. * 0111
7. * 1100
8. * 1110
9. * 1111

1.2 Second Loop

1,2 000-
1,3 00-0
2,4 0-01
3,5 0-10
4,6 01-1
5,6 * 011-
5,8 * -110
6,9 * -111
7,8 11-0
8,9 * 111-

1.3 Third Loop

(5,8),(6,9) -11-
(5,6),(8,9) -11-

The prime implicants are the polinomials without a star(*):

$$\{\overline{x_1}x_2\overline{x_3}, \overline{x_1}x_2\overline{x_4}, \overline{x_1}\overline{x_3}x_4, \overline{x_1}x_3\overline{x_4}, \overline{x_1}x_2x_4, x_1x_2\overline{x_4}, x_3x_4\}$$