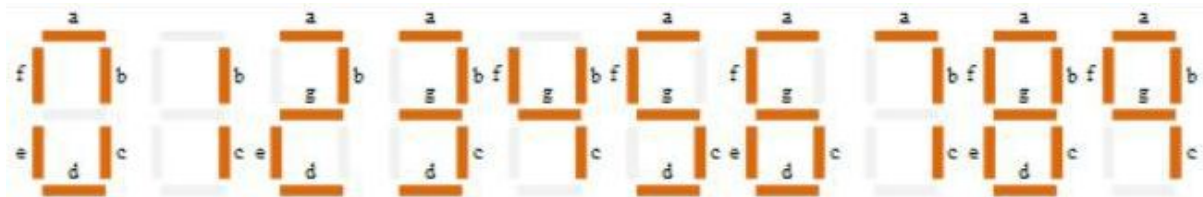# Technical Report

problem declaration:

We are going to design a circuit to receive a 4 bit digit number with 4 switches in order to calculate the amount of its root on 3 seven segments.

solution:

The 4 bit number in the Base 2 numeral system has 16 possibilities for placing 0 and 1.

outputs with 2 decimal places in Base 10 loose its precision.

7-segments will be like:

truth-table for seven segments (ANODE)

Decimal Digit	a	b	c	d	e	f	g
0	1	1	1	1	1	1	0
1	0	1	1	0	0	0	0
2	1	1	0	1	1	0	1
3	1	1	1	1	0	0	1
4	0	1	1	0	0	1	1
5	1	0	1	1	0	1	1
6	1	0	1	1	1	1	1
7	1	1	1	0	0	0	0
8	1	1	1	1	1	1	1
9	1	1	1	0	0	1	1

output is including 1 integer part and 2 decimal parts.

3 output * 7 Pins for showing the numbers on each 7 segments = 21 form karnaugh table.

$$O_1/O_2O_3= \sqrt{x}$$

$$a_0b_0c_0d_0e_0f_0g_0 \; / \; a_1b_1c_1d_1e_1f_1g_1 \; a_2b_2c_2d_2e_2f_2g_2$$

for more information see integral project.

cct file is included. written in logic work application.