COMP 303
HW #1

1. Fill in the blanks:

	Decimal	Octal	Hex	Binary
a)	13	_____	_____	_____
b)	57005	(skip octal)	_____	(skip binary conversion for this number)
c)	51966	(skip octal)	_____	(skip binary conversion for this number)
d)	_____	012	_____	(skip binary conversion for this number)
e)	303	_____	_____	_____
f)	_____	_____	0x1234	_____
g)	_____	_____	0x07d7	_____
h)	_____	_____	0xffff	_____
i)	_____	_____	0x8000	_____

2. You have graduated from Koç and taken over your family's grilled-colon (kokoreç) business. You realize that to be competitive in the grilled-colon market these days, you will have to automate the grilled-colon carts. The carts have four sensors (A through D) and a big red light that indicates a problem. Your task is to design the circuitry to turn on the light when appropriate.

   The truth table for the light is given to you below.

A	***B***	***C***	***D***	***Light***
0	0	0	0	1
0	0	0	1	0
0	0	1	0	1
0	0	1	1	0
0	1	0	0	x
0	1	0	1	x
0	1	1	0	1
0	1	1	1	x
1	0	0	0	0
1	0	0	1	1
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	0
1	1	1	0	1
1	1	1	1	0

a. Draw the corresponding Karnaugh map for the Light output.

Light

AB

CD

b. Determine the minimal equation for Light from the Karnaugh map.

Light =

c. Draw the logic circuitry (at gate level, using AND, OR and NOT gates) for the Light function.