PHYS 335 - SPRING QUARTER 2013
HOMEWORK 1 - SOLUTIONS V.1.0

1. TEXT EX. 8.2

a. $1,110,101.0110_2 =$

$= 2^6 + 2^5 + 2^4 + 2^2 + 2^0 + 2^{-2} + 2^{-3} = 117.375_{10}$

b. $11.010101\ldots_2$

$= 2^1 + 2^0 + 2^{-2} + 2^{-4} + 2^{-6} + \cdots$

$= 3.333_{10} = 10/3_{10}$

c. $2A_H \ (\equiv 2A_{16}) = 2 \cdot 16^1 + 10 = 42_{10}$

a'. $1023_{10} = 1024 - 1 = 2^{10} - 1 = 11\ 1111\ 1111_2$

b'. $1011\ 1010\ 1101 = BAD_H$

c'. 61453_{10} :

$61453_{10} \div 16 = 3840 + 13$

$3840_{10} \div 16 = 240 + 0$

$240 \div 16 = 15 + 0$

$15 \div 16 = 0 + 15$

$13_{10}\ 0_{10}\ 0_{10}\ 15_{10} = FOOD_H$

2. TEXT EX. 8.3

$(+2) \times (-3)$: $2_{10} = 0010_2$, $3_{10} = 0011_2$

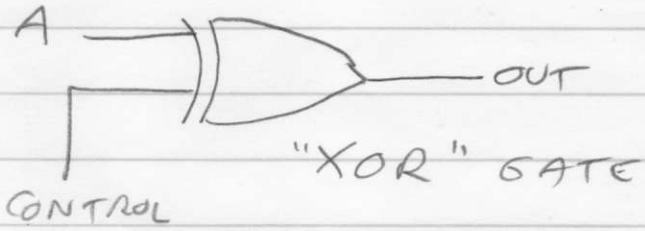
$-3_{10} = 1101_2$ OR 101_2

OR 010_2

$$
\begin{array}{r}
0010 \quad \{+2\} \\
\times\ 1101 \quad \{-3\} \\
\hline
0010 \\
0000 \\
0010 \\
0010 \\
\hline
11010 \quad \{-6\}
\end{array}
$$

NOTICE THE "MSB" IS 1;
HENCE THE PRODUCT IS NEGATIVE.

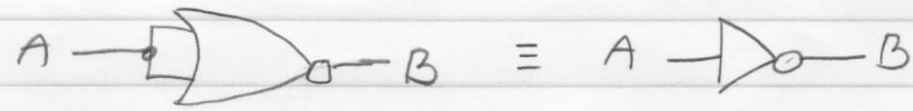
3. TEXT EX. 8.5

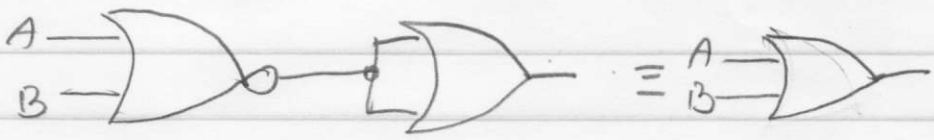


A	CONTROL	OUT	
0	0	0	BUFFER
1	0	1	CONTROL = L
0	1	1	INVERTER
1	0	0	CONTROL = H

4. TEXT EX. 8.8

THERE ARE SEVERAL WAYS TO DO THIS FOR EXAMPLE:

a. 

b. 

c.