

PHYS 335 - SPRING QUARTER 2012
HOMEWORK 1 - SOLUTIONS V.1.0

①

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. $11.010101\dots_2$

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

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

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

a'. $1023_{10} = 1024 - 1 = 2^{10} - 1 = 1111111111_2$

b'. $101110101101 = BAD_4$

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

OR 010_2

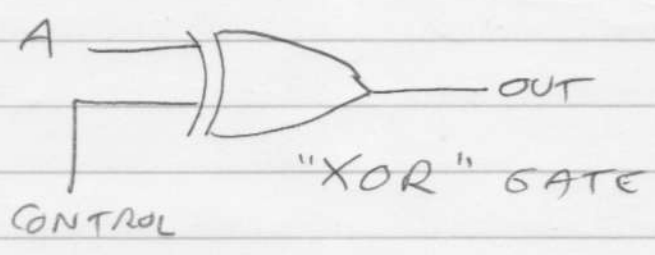
$(+2) \times (-3): 2_{10} = 0010_2, 3_{10} = 0011_2$

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

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

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

3. TEXT EX. 8.5



A	CONTROL	OUT
0	0	0
1	0	1
0	1	1
1	0	0

} BUFFER
 CONTROL = L
 }
 } INVERTER
 CONTROL = H

4. TEXT EX. 8.8

THERE ARE SEVERAL WAYS TO DO THIS FOR EXAMPLE:

