

Kiersten Page

HW #1 Due Friday 9/22

Question #1: Convert the following numbers to their decimal representation:

a) $10011011_2 = 155_{10}$

128	64	32	16	8	4	2	1
1	0	0	1	1	0	1	1

 $128 + 16 + 8 + 2 + 1 = 155_{10}$

b) $1101101_2 = 109_{10}$

128	64	32	16	8	4	2	1
0	1	1	0	1	1	0	1

 $64 + 32 + 8 + 4 + 1 = 109_{10}$

c) $3A8_{16} = 936_{10}$

512	256	128	64	32	16	8	4	2	1
0	0	1	1	1	0	1	0	0	0

3 A 8

 $8 + 32 + 128 + 256 + 512 = 936_{10}$

d) $7214_5 = 309_{10}$

$(2 \cdot 5^3) + (2 \cdot 5^2) + (1 \cdot 5^1) + (4 \cdot 5^0)$

 $250 + 50 + 5 + 4 = 309_{10}$

Question #2: Convert the following numbers to their binary representations

a) $69_{10} = 01000101_2$

128	64	32	16	8	4	2	1
0	1	0	0	0	1	0	1

$$\begin{array}{r} 69 \\ - 64 \\ \hline 5 \\ - 4 \\ \hline 1 \\ - 1 \\ \hline 0 \end{array}$$

b) $485_{10} = 111106101_2$

256	128	64	32	16	8	4	2	1
1	1	1	1	0	0	1	0	1

$$\begin{array}{r} 485 \\ - 256 \\ \hline 229 \\ - 128 \\ \hline 101 \\ - 64 \\ \hline 37 \\ - 32 \\ \hline 5 \\ - 4 \\ \hline 1 \\ - 1 \\ \hline 0 \end{array}$$

c) $6D1A_{16} = 0110110100011010_2$

8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
0	1	1	0	1	1	0	1	0	0	0	1	1	0	1	0

6 D 1 A

A = 10
D = 13
1 = 1
0 = 0

$6D1A_{16} = 0110110100011010_2$