CIS7 Unit 1 Lab 1

In this lab, we will continue to complete the exercises in binary arithmetic, hexadecimal conversions and twos' complement.

1. Binary Multiplication:

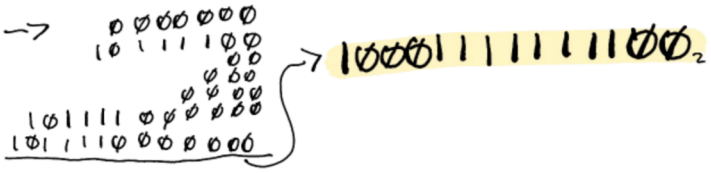
Binary Multiplication Rules

0 x 0 = 0	0 x 1 = 0
1 x 0 = 0	**1 x 1 = 1**

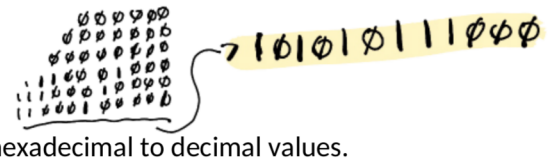
Example:

$$\begin{array}{r} \text{x} \quad 100 \\ \quad\; 011 \\ \hline \quad\; 100 \\ \quad 100 \;+ \\ \hline \quad 1100 \end{array}$$

A. 1011110 x 1100010



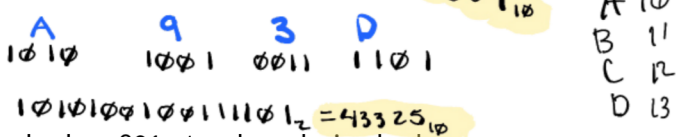
B. 110001 x 111000



2. Convert the following hexadecimal to decimal values.

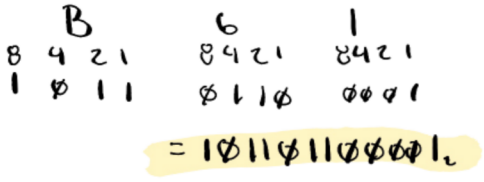
A. $21B_{16}$

B. $A93D_{16}$



3. Convert decimal values 801_{10} to a hexadecimal value.

4. Convert $B61_{16}$ to binary values.



5. Convert $95C2_{16}$ to binary values.

9 5 C 2 = 1001 0101 1100 0010$_2$

6. Find the octal values for the following values:

A. 124_{10}

128 64 32 16 8 4 2 1
0 1 1 1 1 0 0 = 174$_8$
1 7 4

B. 62_{10}

32 16 8 4 2 1
1 1 1 1 0 = 76$_8$
7 6

C. 0111111101_2 = 375_8
3 7 5

7. Find the twos' complement of the following values:

A. 89_{10}

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

A.

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

B. 161_{10}

1 0 1 0 0 0 0 1
0 1 0 1 1 1 1 0
+ 1
0 1 0 1 1 1 1 1

B.

C. 10011000

1 0 0 1 1 0 0 0
0 1 1 0 0 1 1 1
+ 1
0 1 1 0 1 0 0 0

C.

D. 11001011

1 1 0 0 1 0 1 1
0 0 1 1 0 1 0 0
+ 1
0 0 1 1 0 1 0 1

D.