# Practice with Data Representation

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer each of the following questions. You may use a calculator to check your arithmetic but you must show your work.

I. Convert each of the following decimal numbers to their 8 bit binary equivalent.

Example: 10 Solution: 10 ÷ 8 = 1

2 ÷ 4 = 0

2 ÷ 2 = 1

0 ÷ 1 = 0

Answer: 1010

1. 11
2. 25
3. 120
4. 127

II. Convert each of the binary numbers (unsigned) to their decimal equivalent

Example: 00000110 Solution: 0 × 1 = 0

1 × 2 = 2

1 × 4 = 4

Answer: 2 + 4 = 6

1. 10000110
2. 00001011
3. 00011101
4. 01100000
5. 00011111

III. Convert each of the following binary numbers to their hexadecimal equivalent.

Example: 11010011 Solution: 1101 = 13 = D

0011 = 3

Answer: D3

1. 00110011
2. 01111100
3. 10111111
4. 11011010

IV. Convert each of the following hexadecimal numbers to their binary equivalent.

Example: 7D Solution: 7 = 0111

D = 13 = 1101 13/8 = 1

5/4 = 1

1/2 = 0

1/1 = 1

Answer: 01111101

1. E4
2. 9C
3. 6B
4. FF

V. Give the decimal representation of the ASCII values for each of the following characters.

Example: X = 88 (from the table)

1. C
2. c
3. !
4. 7