Practice with Variables and Data Representation

Name _____

Answer each of the following questions. You may use a calculator to check your arithmetic but you must show your work! Turn in this paper and enter your answers in moodle before the next class session.

I. Convert each of the following decimal numbers to their 8 bit binary equivalent.
1. 10

2. 25

3. 120

4. 15

5. 127

6. –4

7. –7

8. –18

9. –127

II. Give the binary and decimal representation of the largest signed integer that can be stored in 4 bits.

III. Give the binary and decimal representation of the smallest signed integer that can be stored in 4 bits.

IV. Convert each of the binary numbers to their signed decimal equivalent
1. 00000110

2. 00001011

3. 00011101

4. 01100000

5. 00011111

6. 11110111

7. 11110010

8. 11100100

9. 10000010

V. Convert each of the following binary numbers to their hexadecimal equivalent.
   1. 00110011

   2. 01111100

   3. 10111111

   4. 11011010

VI. Convert each of the following hexadecimal numbers to their binary equivalent.
   1. E4

   2. 9C

   3. 6B

   4. FF

VII. Give the binary representation of the ASCII values for each of the following characters.
   1. C

   2. c

   3. !