

Assignment # 1

1. Translate the following numbers to BOTH binary AND unsigned hexadecimal:
 - a. 65
 - b. 409
 - c. 16385
2. What are the unsigned decimal AND hexadecimal representations of each of the following binary numbers?
 - a. 0011 0101 1101 1010
 - b. 1100 1110 1010 0011
 - c. 1111 1110 1101 1011
3. What is the binary representation of the following hexadecimal numbers?
 - a. A4693FBC
 - b. B697C7A1
 - c. 2B3D9461
4. What is the 16-bit hexadecimal representation of each of the following signed decimal integers?
 - a. -21
 - b. -45
5. The following 16-bit hexadecimal numbers represent signed integers. Convert each to decimal.
 - a. 6BF9
 - b. C123

6. What is the 8-bit binary (two's-complement) representation of each of the following signed decimal integers?
 - a. -72
 - b. -98
 - c. -26
7. What is the sum of each pair of hexadecimal integers?
 - a. 6B4 + 3FE
 - b. A49 + 6BD
8. Write a function that receives a string containing a 16-bit binary integer. The function must return the string's integer value.
9. Write a function that receives an integer. The function must return a string containing the hexadecimal representation of the integer.
10. Write a function that adds two hexadecimal strings, each as long as 1,000 digits. Return a hexadecimal string that represents the sum of the inputs.
11. Devise a way of subtracting unsigned binary integers. Test your technique by subtracting binary 00000101 from binary 10001000, producing 10000011. Test your technique with at least two other sets of integers, in which a smaller value is always subtracted from a larger one.