Homework for Part I

1. We have mentioned that bits have no inherent meaning. Given the bit pattern

 1000 1110 1110 1111 1100 0000 0000 0000

 What does it represent, assuming that it is

    a. a two's complement integer?

    b. An unsigned integer?

    c. A single precision floating-point number?

2. Write a simple C program that inputs a floating-point number and shows its bit representation in hexadecimal.

3. In a Hamming code, some bits are ''wasted'' in the sense that they are used for checking and not information. What is the percentage of wasted bits for messages whose total length (data + check bits) is $2^n - 1$? Evaluate this expression numerically for values of n from 3 to 6.

4. Convert 825_{ten} into a 16-bit two's complement binary number.

5. Convert -125_{ten} into a 16-bit two's complement binary number.

6．计算题：

x=12, y= -7

(1)用原码一位乘法计算[x×y]补。

(2)用布斯算法计算[x×y]补。

(3)用不恢复除数法计算[x/y] 原。