

## Homework 1

CS 210  
Winter 2004  
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Solve the following problems. Show all work.

1 Convert the following binary numbers to decimal:

- a) 101110
- b) 1110101.11
- c) 110110100

2 Convert the following decimal numbers to binary:

- a) 1231
- b) 673.23
- c) 10000
- d) 1998

3 Convert the following decimal numbers to the indicated bases:

- a) 7562.45 to octal
- b) 1938.257 to hexadecimal
- c) 175.175 to binary

4 Convert the hexadecimal number F3A7C2 to

- a) binary
- b) octal

5 Perform the subtraction with the following unsigned binary numbers using addition and the 2's complement of the subtrahend.

- a)  $11010 - 10000$
- b)  $11010 - 1101$
- c)  $100 - 110000$
- d)  $1010100 - 1010100$

6 The binary numbers listed have a sign in the leftmost position and, if negative, are in 2's complement form. Perform the arithmetic operations indicated and verify the answers.

- a)  $101011 + 111000$
- b)  $001110 + 110010$
- c)  $111001 - 001010$
- d)  $101011 - 100110$

7 Decode the following ASCII code:

1001010 1101111 1101000 1101110 0100000 1000100 1101111 1100101

8 Show the bit configuration that represents the decimal number 295 in

- a) binary
- b) BCD
- c) ASCII