

Homework #1.

010.133 Digital Computer Concept and Practice

Due : 7:00PM, March 27, 2013

1. Convert the following numbers from the given base to the other three bases.

Show the processes of your conversion.

Decimal	Binary	Octal	Hexadecimal
312.5625			
			F7C3.A

2. Consider base 20 for your number system.

- Write the digits for a base-20 system, using an extension of the same digit representation scheme employed for hexadecimal.
- Convert 2000 to base 20. Show the process.
- Convert BEH.J20 to decimal. Show the process.

3. How many 10-bit 2's complement numbers are greater than 0? How many are less than 0? Justify your answer.

4. Convert the following decimal numbers to **8-bit 2's complement numbers** or indicate that the decimal number would overflow the range. (show your conversion process or give the reasons why they overflow)

- (a) -3 (b) 100 (c) 256 (d) -128 (e) 128

5. Convert the following decimal numbers to **6-bit 2's complement binary numbers** and add them. Indicate whether or not the sum overflows a 6-bit result. Show the addition process, and give the reasons if they overflow.

- (a) 19 + 7 (b) 25 + 35 (c) 3 + (-18) (d) 12 + (-32) (e) -13 + (-11)