Bring this homework to class on Wednesday Feb. 11.

#1. Write the following numbers as binary fractions with 4 fractional bits (0.0001 precision)

a. 29.3   _____

b. 0.1223   _____

#2. Write the missing unsigned integer numbers in binary, hex, and decimal representations.

Decimal	Hex	Binary
299		
	6B	
		10101101
131		
	A5	
		01010011

#3. a. Express or decode the following binary floating point numbers. The fraction part (mantissa) should be normalized to five-bit accuracy (to 0.1xxxx where only the four bits xxxx are stored in memory, but show all here). The exponent should be a 5-bit number in 2's-compliment representation.

Decimal Number	Sign Bit	Mantissa (fraction)	Exponent
2.125	0	0.10001	00010
56			
	1	0.10101	10101
-0.0398			

b. How many bits of memory are required to store floating point numbers in this form?

c. What is the precision* to which a number can be stored (accuracy in %) ?   _____ %

* assume optimum rounding.

#4. Show how you would do the following calculations using 2's complement 10-bit binary numbers when A = 98 and   B=205.   Show the operations in binary, and the results in binary and decimal

<table>
<tr><td></td><td align="center">Binary</td><td align="center">Decimal</td></tr>
<tr><td>A</td><td></td><td></td></tr>
<tr><td></td><td>_____</td><td>_____98_____</td></tr>
<tr><td>B</td><td></td><td></td></tr>
<tr><td></td><td>_____</td><td>_____205_____</td></tr>
<tr><td>-A</td><td></td><td></td></tr>
<tr><td></td><td>_____</td><td>_____-98_____</td></tr>
<tr><td>-B</td><td></td><td></td></tr>
<tr><td></td><td>_____</td><td>_____-205_____</td></tr>
<tr><td>A – B</td><td></td><td></td></tr>
<tr><td></td><td>_____</td><td>_____</td></tr>
<tr><td>B - A</td><td></td><td></td></tr>
<tr><td></td><td>_____</td><td>_____</td></tr>
<tr><td>(-A) + (-B)</td><td></td><td></td></tr>
<tr><td></td><td>_____</td><td>_____</td></tr>
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