OOSD: Practice Problems 6

1. Complete the following table by converting between bases. The radix is given on the top of the columns.

Binary	Decimal	Hexadecimal
	55	
		55
1010110		
11011011		
	507	
		BAD
111000111001		
		1101
	1055	

2. Perform the indicated binary arithmetic:

   a) 1101 + 101 =

   b) 11111 + 1111 =

   c) 10000 - 11 =

   d) 11001100 - 10101010 =

   e) 110110 x 1011 =

3. Perform the indicated hexadecimal arithmetic:

   a) ABC + DEF =

   b) 2B2B2 + AAA =

   c) F00D - 5E =

   d) 700 - 1 =

4. Covert the following decimal numbers into binary using the specified number of bits, but give all your answers in hexadecimal.

Decimal	Num. of Bits	Sign/Magnitude	2s Complement
-31	8	9F	E1
25	6		
-25	6		
-1	8		
-99	8		
-128	8		
128	8		
511	12		
1000	12		

7. Assume the hexadecimal numbers below represent 32-bit, twos complement integers. Perform the arithmetic, noting any exceptional conditions that occur.

   a) 0ABCDEF0 + 009F9F55 =

   b) ABABABAB + FFFFFFFF =

   c) 0350CC45 - 04D30F15 = Hint: Negate and add

   d) 7E177E17 + 6208FE42 =