

CSE 260M - Homework 1

Due September 6, 2006

1. What is the decimal equivalent of the largest (unsigned) binary integer that can be obtained with (a) 16 bits and (b) 24 bits?
2. Convert the following (unsigned) binary numbers to decimal: (a) 1010010, (b) 10101010.101, and (c) 10100110.
3. Convert the following decimal numbers to hexadecimal: (a) 1492, (b) 1215, and (c) 1066.
4. Add and subtract the following numbers without converting to decimal: (a) $(234)_8$ and $(471)_8$; (b) $(a63)_{16}$ and $(bc)_{16}$; and (c) $(101001)_2$ and $(100101)_2$.
5. Multiply the following numbers without converting to decimal: (a) $(12)_8$ and $(34)_8$; and (b) $(101010)_2$ and $(11101)_2$.
6. A computer represents information in groups of 48 bits. How many different integers can be represented in (a) binary; (b) BCD; and (c) 8-bit ASCII, using all 48 bits in a word?
7. What pattern of bits is used to represent the integer 237 (a) in binary notation; (b) in BCD notation; and (c) in ASCII notation?