Homework Assignment #5

Assigned Thursday, February 24, 2005
Due Thursday, March 3, 2005

(Note – Solutions are posted on the course web site after the due date)

1. **(10 pts) Do problem 5.1 in the Brown & Vranesic textbook.**

2. **(15 pts) Do problem 5.3 in the Brown & Vranesic textbook.**

3. **(15 pts) Do problem 5.5 in the Brown & Vranesic textbook.**

4. **(15 pts) Do problem 5.7 in the Brown & Vranesic textbook.**

5. **(15 pts) Fill in the unknown x's in the following equations. Assume all numbers are unsigned.**

xxx_{10}	$= xxxxxx1101_2$	$= 12x_{16}$	$= 4xx_8$
xxx_{10}	$= xxxxxxxxxx_2$	$= x6x_{16}$	$= 142_8$
511_{10}	$= xxxxxxxxxx_2$	$= xFx_{16}$	$= x7x_8$
$2xx_{10}$	$= 0x0x0x0x0x_2$	$= x0x_{16}$	$= xx0_8$
456_{10}	$= xxx100xxxx_2$	$= xxx_{16}$	$= xx0_8$

6. **(15 pts) Take the binary number B = 10101001.**
   (a) If B is an unsigned number, what is its decimal value?
   (b) If B is a signed-magnitude number, what is its decimal value?
   (c) If B is an 8-bit, two's complement number, what is its decimal value?
   (d) Assume B is an 8-bit, two's complement number. Extend B to 16 bits; that is, write its equivalent value as a 16 bit two's complement number.
   (e) If B is an 8-bit, two's complement number, write –B as an 8-bit, two's complement number.

7. **(15 pts) Consider the decimal number -63. Express this number as a 9-bit two's complement binary number, a 9-bit one's complement number, and a 9-bit signed magnitude number.**