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HW5: Truncation, Sign Extension, and Arithmetic (CS220-02)

1) What is the resulting bit pattern when the unsigned 10 bit binary value 1101001101 is stored in an 8 bit container?

2) What is the resulting bit pattern when the signed 10 bit binary value 1100101110 is stored in an 8 bit container?

3) What is the resulting bit pattern when the unsigned 8 bit binary value 11001101 is stored in a 10 bit container?

4) What is the resulting bit pattern when the signed 8 bit binary value 01001101 is stored in a 10 bit container?

5) What is the resulting bit pattern when the signed 8 bit binary value 10110010 is stored in a 10 bit container?

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For problems 6 through 22, assume a 6 bit machine and that
A = 000111, B = 111100, C = 011010, D = 110101 and E = 111101

6) (a) Show work to find unsigned A + C. (b) What is the decimal equivalent of the answer?

7) (a) Show work to find unsigned D + E. (b) What is the decimal equivalent of the answer?

8) (a) Show work to find signed 2s complement A + D. (b) What is the decimal equivalent of the answer?

9) (a) Show work to find signed 2s complement -B + C. (b) What is the decimal equivalent of the answer?

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10) (a) Show work to find signed 2s complement A + -B. (b) What is the decimal equivalent of the answer?

11) (a) Show work to find signed 2s complement C + E. (b) What is the decimal equivalent of the answer?

12) (a) Show work to find signed 2s complement B + D. (b) What is the decimal equivalent of the answer?

13) (a) Show work to find signed 2s complement C - A. (b) What is the decimal equivalent of the answer?

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14) (a) Show work to find signed 2s complement A - D. (b) What is the decimal equivalent of the answer?

15) (a) Show work to find signed 2s complement E - C. (b) What is the decimal equivalent of the answer?

16) (a) Show work to find signed 2s complement -B - C. (b) What is the decimal equivalent of the answer?

17) (a) Show work to find signed 2s complement C - D. (b) What is the decimal equivalent of the answer?

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18) (a) Show work to find unsigned E * C. For this, restrict the result to 6 bits. (b) What is the decimal equivalent of the answer?

19) (a) Show work to find signed 2s complement B * E. For this, restrict the result to 6 bits. (b) What is the decimal equivalent of the answer?

20) (a) Show work to find signed 2s complement A * -B. For this, restrict the result to 6 bits. (b) What is the decimal equivalent of the answer?

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21) (a) Show work to find signed 2s complement -E * A. For this, restrict the result to 6 bits.
(b) What is the decimal equivalent of the answer?

22) (a) Show work to find signed 2s complement B * -D. For this, restrict the result to 6 bits.
(b) What is the decimal equivalent of the answer?