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HW6: Integer and real division (CS220-02)

For problems 1 through 7, assume a 6 bit machine and that A = 000111, B = 111100, C = 011010, D = 110101 and E = 111101

Unsigned Integer Division

1) (a) Show work to find the 6 bit unsigned quotient and remainder of B / C. (b) What is the decimal equivalent of the answer?

2's complement of 011010 = 100101 + 1 = 100110

Q:1,R:1000

2) (a) Show work to find the 6 bit unsigned quotient and remainder of C / A. (b) What is the decimal equivalent of the answer?

$$011010 / 000111 =$$

2's complement of 000111 = 111000 + 1 = 111001

Q:1,R:1000

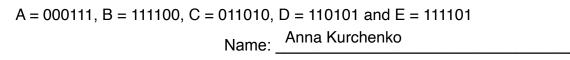
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A = 000111, B = 111100, C = 011010, D = 110101 and E = 111101

Signed Integer Division

- 3) (a) Show work to find the 6 bit signed 2s' complement quotient and remainder of C / A.
- (b) What is the decimal equivalent of the answer?

- 4) (a) Show work to find the 6 bit signed 2s' complement quotient and remainder of D / B.
- (b) What is the decimal equivalent of the answer?



- 5) (a) Show work to find the 6 bit signed 2s' complement quotient and remainder of A / E.
- (b) What is the decimal equivalent of the answer?

- 6) (a) Show work to find the 6 bit signed 2s' complement quotient and remainder of C / -B.
- (b) What is the decimal equivalent of the answer?

$$A = 000111$$
, $B = 111100$, $C = 011010$, $D = 110101$ and $E = 111101$

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- 7) (a) Show work to find the 6 bit signed 2s' complement quotient and remainder of B / -E.
- (b) What is the decimal equivalent of the answer?

Unsigned Real Division

8) Show your work to calculate the binary real valued result of 116 / 5 with 5 bits of precision in the fractional portion of the result.

$$116 / 5 = 23 + 1/5 = 23.20000$$

$$A = 000111$$
, $B = 111100$, $C = 011010$, $D = 110101$ and $E = 111101$

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9) Show your work to calculate the binary real valued result of 30 / 8 with 5 bits of precision in the fractional portion of the result.

$$30 / 8 = 4 + 6/8 = 4.75000$$

10) Show your work to calculate the binary real valued result of 17 / 10 with 5 bits of precision in the fractional portion of the result.

7

$$17 / 10 = 1 + 7/10 = 1.70000$$