Lab 2

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CS 350
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Friday Lab

1)a) 9 bits → $2^9 = 512 - 400 = (b)$

b) 112 students

2) BEDO 0000

1011 1110 1101 0000 $\times 10^{16}$

S = 1

E = 0111 1101 $\quad 125 - 127 = -2$

F = 101 $\times 10^{20}$

$= -1.01 \times 2^{-2} \quad .01.01 \times 2^{-2} = .0101$

a) $= -1.101 \times 2^{-2} \rightarrow$

b) $-.40625$

$-.0.1101$

$2^{-2} \; 2^{-3} \; 2^{-5}$

$.25 + .125 + .03125$

3) 0101 (5)

$43/64 = .671875$

$-.5$

$.171875$

$-.125$

$.046875$

$-.03125$

$.015625$

$-.015625$

0

1010 11

0101. 101011

$1.0110101 1 \times 2^2$

4) $5^{43/64}$

1.01101011×2^{2}

$S = 0$

$E = X - 127 = 2$

$129 - 127 = 2$

1000 0001

$F = 01101011 \times 10^{24}$

a) 0100 0000 1011 0101 1000 0000 0000 0000

4 0 B 5 8 0 0 0

b) 40B58000

5) $X = 11.00000\ 00000\ 00000\ 00000\ 011_2$

a) X has 25 places

b) = 11.

c) = 11.00000 0000 0000 00000 1

$127 - 126 = 1$

$S = 1$

$E = 1000000$

$F = 0000$

6) a) $1.1111 + .11111 = 10.11110$ yes trunc.

b) $.111111 - .11111 = 1.11110$ No truncation because 0 in end

c) $1.1111 + 1.1111 = 11.1110$ No truncation

d) $10.11101 + .11111 = 11.11100$ No truncation

e) Floating point operations are commutative. Not associate or distributive (especially +, *)