**Activity 1**

**Chapter 2**

Problems 2.5.3

P2-1; P2-2, P2-4, P2-10

P2-1:

1. (01101)2=(13)10
2. (1011000)2 = (88)10
3. (011110.01)2 = (30.75)10
4. (111111.111)2 = (63.875)10

P2-2:

1. (AB2)16 = (2738)10
2. (411)8 = (0001 0000 1001)2 = (265)10
3. (ABB)16 = (2747)10
4. (35E.E1)16 = (0011 0101 1110.1110 0001)2 = (862.87890625)10

P2-4:

1. 1234 = (00000100 11010010)2
2. 88 = (0101 1000)2
3. 124.02 = (0111 1100.00110011)2
4. 14.56 = (1110.100011110101)2

P2-10:

1. (01101)2 = (E)16
2. (1011000)2 = (58)16
3. (011110.01)2 = (1E.4)16
4. (111111.111)2 = (63.E)16

**Chapter 3:**

Problems 3.8.3

P3-10, P3-11, P3-17, P3-20

P3-10:

1. 41 = (00000000 00101001)2
2. 411 = (00000001 10011011)2
3. 1234 = (00000100 11010010)2
4. 342 = (00000001 01010110)2

P3-11: 8-bit two’s complement

1. -12 = (1111 0100)2
2. -145 (8-bit can only represent from 27-1 to -27)
3. 56 = (0011 1000)2
4. 142 (8-bit can only represent from 27-1 to -27)

P3-17:

1. 1.10001 = 1.10001 x 20 -> Exponent = 0
2. 23 x 111.1111 = 1.111111 x 25 -> Exponent = 5
3. 2-2 x 101.110011 = 1.01110011 x 20 -> Exponent = 0
4. 2-5 x 101101.00000110011000 = 1.0110100000110011000 x 20 -> Exponent = 0

P3-20:

1. 7.1875

(7.1875)10 = (111.0011)2

S = 0

(111.0011)2 = (1.110011)2 x 22

E = 129 = (10000001)2

01000000111001100000000000000000

1. -12.640625

12. 640625 = (1100.101001)2

S = 1

(1100.101001)2 = (1.100101001)2 x 23

E = 130 = (10000010)2

11000001010010100100000000000000

1. 11.40625

11.40625 = (1011.01101)2

S = 0

(1011.01101)2 = (1.01101101)2 x 23

E = 130 = (10000010)2

01000001001101101000000000000000

1. -0.375

0.375 = 0.011

S = 1

(0.011)2 = (1.1)2 x 2-2

E = 125 = (01111101)2

10111110110000000000000000000000