**HOMEWORK 4**

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Convert the following binary numbers to decimal (SHOW YOUR WORK):

10001002

(1\*2^6)+(0\*2^5)+(0\*2^4)+(0\*2^3)+(1\*2^2)+(0\*2^1)+(0\*2^0)= 6810

101111112

(1\*2^7)+(0\*2^6)+(1\*2^5)+(1\*2^4)+(1\*2^3)+(1\*2^2)+(1\*2^1)+(1\*2^0)= 19110

10000012

(1\*2^6)+(0\*2^5)+(0\*2^4)+(0\*2^3)+(0\*2^2)+(0\*1^1)+(1\*2^0)=6510

10010112

(1\*2^6)+(0\*2^5)+(0\*2^4)+(1\*2^3)+(0\*2^2)+(1\*2^1)+(1\*2^0)=7510

Convert the following hexadecimal numbers to decimal (SHOW YOUR WORK):

1348F16

(1\*16^4)+(3\*16^3)+(4\*16^2)+(8\*16^1)+(15\*16^0)=7899110

AB71116

(10\*16^4)+(11\*16^3)+(7\*16^2)+(1\*16^1)+(1\*16^0)=70222510

457D16

(4\*16^3)+(5\*16^2)+(7\*16^1)+(13\*16^0)=1778910

8777916

(8\*16^4)+(7\*16^3)+(7\*16^2)+(7\*16^1)+(9\*16^0)=55487310

Convert the following decimal numbers to both binary and hexadecimal (SHOW YOUR WORK):

7810

Decimal:

78/2= 39 | 0

39/2=19.5|1

19/2=9.5 |1

9/2=4.5 |1 => 10011102

4/2=2 |0

2/2=1 |0

1/2=0.5 |1

Hexadecimal:

78/16=4.875

4\*16=64 => 4e16

78-64=14

98010

Decimal:

980/2=490 |0

490/2=245 |0

245/2=122.5 |1

122/2=61 |0

61/2=30.5 |1

30/2=15 |0 =>11110101002

15/2=7.5 |1

7/2=3.5 |1

3/2=1.5 |1

1/2=0.5 |1

Hexadecimal:

980/256=3.8281

3\*256=768

980-768=212

212/16=13.25 => 3d416

13\*16=208

212-208=4

100310

Decimal:

1003/2=501.5 |1

501/2=250.5 |1

250/2=125 |0

125/2=62.5 |1

62/2=31 |0

31/2=15.5 |1 =>11111010112

15/2=7.5 |1

7/2=3.5 |1

3/2=1.5 |1

1/2=0.5 |1

Hexadecimal:

1003/256=3.9180

3\*256=768

1003-768=235

235/16=14.6875 => 3EB16

14\*16=224

235-224=11