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ICS 312
Quiz Solution #1
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Speed Test

Question: Write down the 4 bit binary representation of the hex digits 6, 9, A, and D.

Answer:	6	9	A	D
	0110	1001	1010	1101

Question: Supply the decimal values of the following powers of 2.

Answer:	5	8	3	11
	32	256	8	2048

Question: Supply the decimal values of the following powers of 2.

Answer:	1110	0101	1011	1100
	E	5	B	C

Quiz on Number Systems

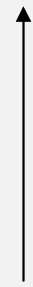
Question: Supply the decimal value of 2^8 .

Answer: $2^8 = 256$

Question: Convert to binary and hex the decimal number 280982.

Answer:	280982/2	= 140491 +	0
	140491/2	= 70245 +	1
	70245/2	= 35122 +	1
	35122/2	= 17561 +	0

17561/2	= 8780 +	1
8780/2	= 4390 +	0
4390/2	= 2195 +	0
2195/2	= 1097 +	1
1097/2	= 548 +	1
548/2	= 274 +	0
274/2	= 137 +	0
137/2	= 68 +	1
68/2	= 34 +	0
34/2	= 17 +	0
17/2	= 8 +	1
8/2	= 4 +	0
4/2	= 2 +	0
2/2	= 1 +	0
1/2	= 0 +	1



∴ $280982_d = 100\ 0100\ 1001\ 1001\ 0110_b$
 $280982_d = 44996_h$

Question: Convert to hex and decimal the binary number 0 1110 1010 1011.

Answer:	0	1110	1010	1011
	0	E	A	B

$0\ 1110\ 1010\ 1011_b = EAB_h = 14 \cdot 16^2 + 10 \cdot 16^1 + 11 \cdot 16^0 = 3755_d$

∴ $0\ 1110\ 1010\ 1011_b = EAB_h$
 $0\ 1110\ 1010\ 1011_b = 3755_d$

Question: Add the binary numbers.

Answer:

$$\begin{array}{r} 10\ 1101\ 1010_b \\ +\ 00\ 1110\ 0110_b \\ \hline 11\ 1100\ 0000_b \end{array}$$

Question: Add the hex numbers.

Answer:

$$\begin{array}{r} 2 F E 0 3 F_h \\ + 3 E E 2 4 8_h \\ \hline 6 E C 2 8 7_h \end{array}$$