Binary Numbers Review Questions

Name: _____

1. Write the binary numbers from 0 to 15 in the middle column. Write the hexadecimal numbers from 0 to 15 in the right hand column.

Decimal	Binary	Hexadecimal
0	0000	0
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

2. Following the instructions in the handout, convert the following numbers from binary to decimal. Show your calculations in the columns below.

Powers of two ($x^0 = 1$)	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	
Positional Weight of binary digit	128	64	32	16	8	4	2	1	Answer
A) 0000 1101 =									
B) 0011 1100 =									
C) 0111 1110 =									
D) 0110 1111 =									
E) 1010 1100 =									

3. Following the instructions in the handout "Binary Numbers", convert the following numbers from decimal to binary. Show your calculations in the columns below.

Powers of two ($x^0 = 1$)	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	
Positional Weight of binary digit	128	64	32	16	8	4	2	1	Answer
A) 49 =									
B) 66 =									
C) 86 =									
D) 107 =									
E) 138 =									

2. Convert this hexadecimal number to binary:

   $FED4_{16}$ =

3. Convert this binary number to hexadecimal:

   A) 1011 0001 1111 1111 =

4. Complete the following table

Decimal	Power of 2	Quantity	Abbreviation
8 bits	2^3 bits		
1024 bytes	2^{10} bytes		1 KB
1 048 576 bits		1 Megabit	
1 073 741 824 bytes			1 GB

(2) 5. The GIF image format uses one byte of memory to record the colour of every pixel in the image. How many different colours can be represented by an 8-bit binary code? Explain how you arrived at your answer.