Other Bases #4

NAME_____ DATE_____

We have been studying place value in the decimal, octal, and binary systems. Most computer have registers that have 8, 16, or 32 bits. It is convenient to write numbers in hexadecimal since 4 binary bits make one hex number.

Binary	Hex	Decimal
0000	0	0
0001	1	1
0010	2	2
0011	3	3
0100	4	4
0101	5	5
0110	6	6
0111	7	7
1000	8	8
1001	9	9
1010	A	10
1011	B	11
1100	C	12
1101	D	13
1110	E	14
1111	F	15

It is easy to convert from binary to hexadecimal and vice versa. Just group the binary digits into groups of 4 (starting on the left). Then look up the binary equivalent in the table.

For example,

$0101\ 0110 = 56_{16}$

Find the hexadecimal equivalents of these binary numbers.

0111 1110 = _____

1111 0001 = _____

1010 0101 = _____

0000 1111 = _____

1101 1001 0011 0011 = _____

0101 0110 1100 1100 = _____

Find the binary equivalents of these hex numbers.

FF_{16} = _____

34_{16} = _____

$3F_{16}$ = _____

$B0_{16}$ = _____

$D4_{16}$ = _____

AA_{16} = _____

Describe your algorithm for converting from hex to binary.

_____

_____

_____

_____

_____

_____

_____

_____