Number Systems Conversion 2

Hexadecimal to Binary Conversion

Each hex digit represents four bits of binary
Convert each hex digit to its appropriate four-bit binary representation
Example:
Convert 0xC5D to binary
C = 12 = 1100
5 = 0101
D = 13 = 1101
So 0xC5D = 110001011101

Binary to Hexadecimal Conversion

Each four bits of binary represents one hex digit
Divide the binary into four bit segments starting from the right.
Zero fill on the left if necessary
Convert each four digit binary segment into hex
Example:
Convert 1010111111 to hex
Divide into four bit segments (zero fill to the left if necessary)
0010 1011 1111
Convert each segment into hex
0010 = 2
1011 = 11 = B
1111 = 15 = F
Therefore:
1010111111 = 0x2BF

Decimal to Hexadecimal Conversion

Divide the decimal number by 16
Write down the answer and the remainder
Divide the quotient (answer) of the first division by sixteen and track the same information
Continue until the quotient is 0
Convert the remainders to their hex values
Line up the converted remainders in reverse order
Example
Convert 473 to hexadecimal

Formula	Quotient	Remainder	Hex Equivalent
473/16	29	9	9
29/16	1	13	D
1/16	0	1	1

473 in hexadecimal is 0x1D9