Convert the following Decimal to Binary

a) 282

= 256 + 16 + 8 + 2

= 2^8 + 2^4 + 2^3 + 2^1

=100011010

b) 300

=256 + 32 + 8 + 4

=2^8 + 2^5 + 2^3 + 2^2

=10010110

c) 487621

= 262,144 + 131,072 + 65,536 + 16,384 + 8192 + 4096 + 128 + 64 + 4 + 1

= 2^18 + 2^17 + 2^16 + 2^14 + 2^13 + 2^12 + 2^7 + 2^6 + 2^2 + 2^0

=1110111000011000101

d) 38211

= 32,768 + 4096 + 1024 + 256 + 64 + 2 + 1

=2^15 + 2^12 + 2^10 + 2^8 + 2^6 + 2^1 + 2^0

=1001010101000011

Convert the following to Binary to Decimal

a) 111111

=2^0 + 2^1 + 2^2 + 2^3 + 2^4 + 2^5

=1 + 2 + 4 + 8 + 16 + 32

=63

b) 1010111

=2^0 + 2^1 + 2^2 + 2^4 + 2^6

=1 + 2 + 4 + 16 + 64

=87

c) 10001110

=2^1 + 2^2 + 2^3 + 2^7

=2 + 4 + 8 + 128

=142

d) 011101

=2^0 + 2^2 + 2^3 + 2^4

=1 + 4 + 8 + 16

=29

Convert the following Hexa-Decimal to Binary

a) 2E

=2 , 14

=2^1 AND 2^3 + 2^2 + 2^1

=101110

b) 4A 6B

=4, 10, 6, 11

=2^2 AND 2^3 + 2^1 AND 2^2 + 2^1 AND 2^3 + 2^1 + 2^0

=100101001101011

c) 6B2A

=6, 11, 2, 10

=2^2 + 2^1 AND 2^3 + 2^1 + 2^0 AND 2^1 AND 2^3 + 2^1

=110101100101010

d) AAAABB

A => 10 => 2^3 + 2^1 => 1010

B => 11 => 2^3 + 2^1 + 2^0 => 1011

THEREFORE AAAABB = 101010101010101010111011

Convert the following to Binary to Hexa-Decimal

a) 111111

=0011 AND 1111

=2^0 + 2^1 AND 2^0 + 2^1 + 2^2 + 2^3

=3 AND 15

=3F

b) 1010111

0101 AND 0111

=2^0 + 2^2 AND 2^0 + 2^1 + 2^2

=5 AND 7

=57

c) 10001110

=1000 AND 1110

=2^3 AND 2^1 + 2^2 + 2^3

=8 AND 14

=8E

d) 011101

= 0001 AND 1101

=2^0 AND 2^0 + 2^2 + 2^3

=1 AND 13

=1D