Converting binary to denary

a) 10111001

128	64	32	16	8	4	2	1
1	0	1	1	1	0	0	1

128 + 32 + 16 + 8 + 1

= 185

b) 00010001

16	8	4	2	1
1	0	0	0	1

16 + 1 = 17

c) 1111 1111 = 10000 0000 - 1 = $2^8 - 1$ = 255

d) 0000 0000 = 0

Denary to binary

a) 64/2 = 26 r 1
26/2 = 12 r 0
12/2 = 6 r 0
6/2 = 3 r 0
3/2 = 1 r 1
1/2 = 0 r 1

b) 131/2 = 65 r 1
65/2 = 32 r 1
32/2 = 16 r 0
16 → 8 r 0
8 → 4 r 0
4 → 2 r 0
2 → 1 r 0
1/2 = 0 r 1

a) 1100 01

b) 1000 0011

c) 127/2 = $2^7 - 1$
= 0111 1111

d) 255 = 1111 1111

e) 203/2 = 101 r 1
101/2 = 50 r 1
50/2 = 25 r 0
25/2 = 12 r 1
12/2 = 6 r 0
6/2 = 3 r 0
3/2 = 1 r 1
1/2 = 0 r 1

e) 1100 1011

Converting Hex to binary

1)

a) 9 2

1001 0010

b) S | C

0101 | 1000

c) F | 8

1111 | 1000

d) A | B | C | D

1010 | 1011 | 1100 | 1101

e) F F F F

1111 x4

Converting binary to hex

2)

a) 1001 | 0011

9 | 3

b) 1111 | 1111

F | F

c) 1101 | 0101 | 0111 | 1111

D | 5 | 7 | F

d) 1100 | 1110 | 1011 | 1100

C | E | B | C