CS 273 HW 1

1) b) 123_{10} to binary

123	1
61	1
30	0
15	1
7	1
3	1
1	1

1111011

64 32 16 8 2 1

96 → 112 → 120 → 122 → 123 ✓

c) 1000_{10} to binary

1000	0
500	0
250	0
125	1
62	0
31	1
15	1
7	1
3	1
1	1

1111 01000

512 256 128 64 32 8

768 → 896 → 960 → 992 → 1000 ✓

2) b) 1000001 to decimal

64 32 16 8 4 2 1

64 + 1 = 65

d) 1010 to decimal

8 4 2 1

8 + 2 = 10

3) 1000001 to hexidecimal

0100 0001

41

1010 to hexidecimal

A

4) e) FFFFH to binary & decimal

1111 1111 1111 1111

65535

32768
16384
8192
4096
2048
1024
+ 512
64512

64512
512
256
+ 128
65408

65408
64
32
16
8
4
2
+ 1
65535

5) 123_{10} to hexidecimal

0111 1011

7b

1000_{10} to hexidecimal

0011 1110 1000

3 E 8

3E8

6) a) 0x35

0011 0101

1100 1010 1s

\+ 1

11001011 2s

b)

35	1	0010 0011
17	1	1101 1100 1s
8	0	+ 1
4	0	1101 1101 2s
2	0	
1	1	

c) 035 $3 \times 8^1 + 5 = 29$

29	1
14	0
7	1
3	1
1	1

00011101
11100010 1s
\+ 1
11100011 2s

d) 0b10001111
01110000 1s
\+ 1
01110001 2s

7) 0x9C hexadecimal

ASCII: Œ (latin symbol grapheme)

binary: 1001 1100
unsigned decimal: 156
signed decimal: -100

2
128
16
8
\+ 4
156

1001 1100
0110 0011
\+ 1
0110 0100

1
64
32
\+ 4
100