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APCS GLL - Numeral System

For practice, convert the following:

10000112 to a decimal number

1\*2^6+1\*2^1+1\*2^0 = **67**

143 to a binary number

143/2 = 71 r 1

71/2 = 35 r 1

35/2 = 17 r 1

17/2 = 8 r 1

8/2 = 4 r 0

4/2 = 2 r 0

2/2 = 1 r 0

1/2 = 1 r 1

143 = **100011112**

A0916 to a decimal number

A = 10

10\*16^2 + 9\*16^0 = **2569**

1501 to a hexadecimal number

1501/16 = 93 r 13 = D

93/16 = 5 r 13 = D

5/16 = 0 r 5 = 5

**5DD16**

4568 to a decimal number

4\*8^2+5\*8^1+6\*8^0 = **302**

655 to an octal number

655/8 = 81 r 7

81/8 = 10 r 1

10/8 = 1 r 2

2/8 = 0 r 1

**1217**8

1010112 to a hexadecimal number

1\*2^0+1\*2^1+1\*2^3+1\*2^5 = 43

43/16 = 2 r 11 = B

2/16 =0 r 2

**2B16**

C916 to a binary number

C = 12

12\*16^1+9\*16^0 = 201

201/2 = 100 r 1

100/2 50 r 0

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

**110010012**

1001112 to an octal number

1\*2^5+1\*2^2+1\*2^1+1\*2^0 = 39

39/8 = 4 r 7

4/8 = 0 r 4

**478**

348 to a binary number

4\*8^0+3\*8^1 = 28

28/2 = 14 r 0

14/2 = 7 r 0

7/2 = 3 r 1

3/2 = 1 r 1

1/2 = 0 r 1

**111002**

A816 to an octal number

10\*16^1+8^16^0 = 168

168/8 = 21 r 0

21/8 = 2 r 5

2/8 = 0 r 2

**2508**

3438 to a hexadecimal number

3\*8^2+4\*8^1+3\*8^0 = 227

227/16 = 14 = E r 3

3/16 = 0 r 3

**E316**