

Optional: Binary & Hexadecimal

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2:28 PM

base four: (base four)

1
2
3
10 four
11
12
13
20
21
22
23
30
31
32
33
100 = $1 \times 4^2 + 0 \times 4^1 + 0 \times 4^0$

binary

1	one
10	two
11	three
100	four

↑ ↑ ↑
four's place two's place one's place

$$1011 = 1 \times 8 + 0 \times 4 + 1 \times 2 + 1 \times 1$$

hexadecimal: base 16

1

2

3

4

5

6

7

8

9

A

B

C

D

E

F

$$10 = 1 \times 16 + 0 \times 1$$

in hex, a number is written as 35

but what is this same number in base 10?

$$3 \times 16 + 5 \times 1$$

what would be $235_{\text{hex}} = 2 \times 16^2 + 3 \times 16 + 5 \times 1$