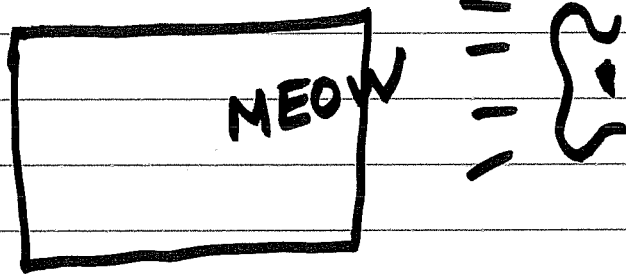


Abstraction



1s | 0s

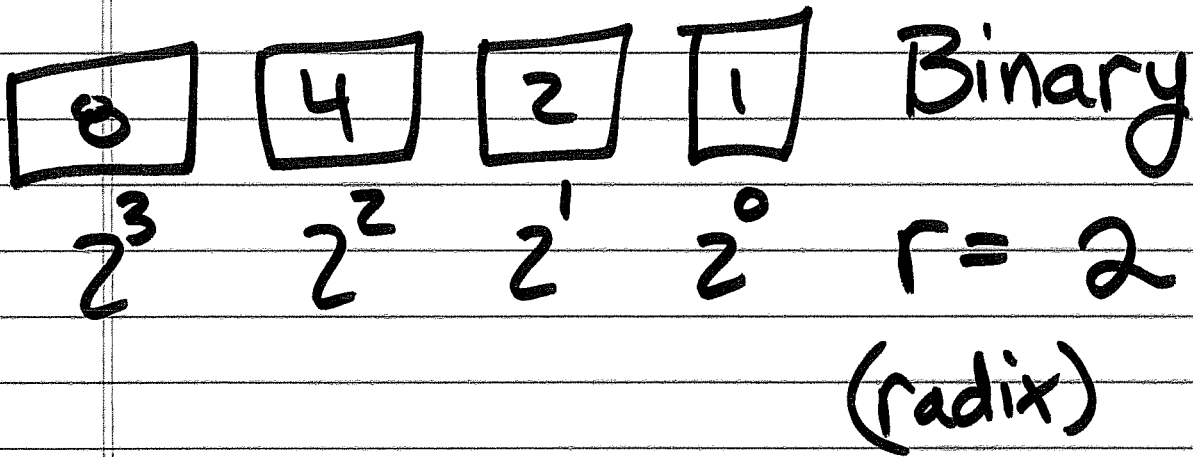
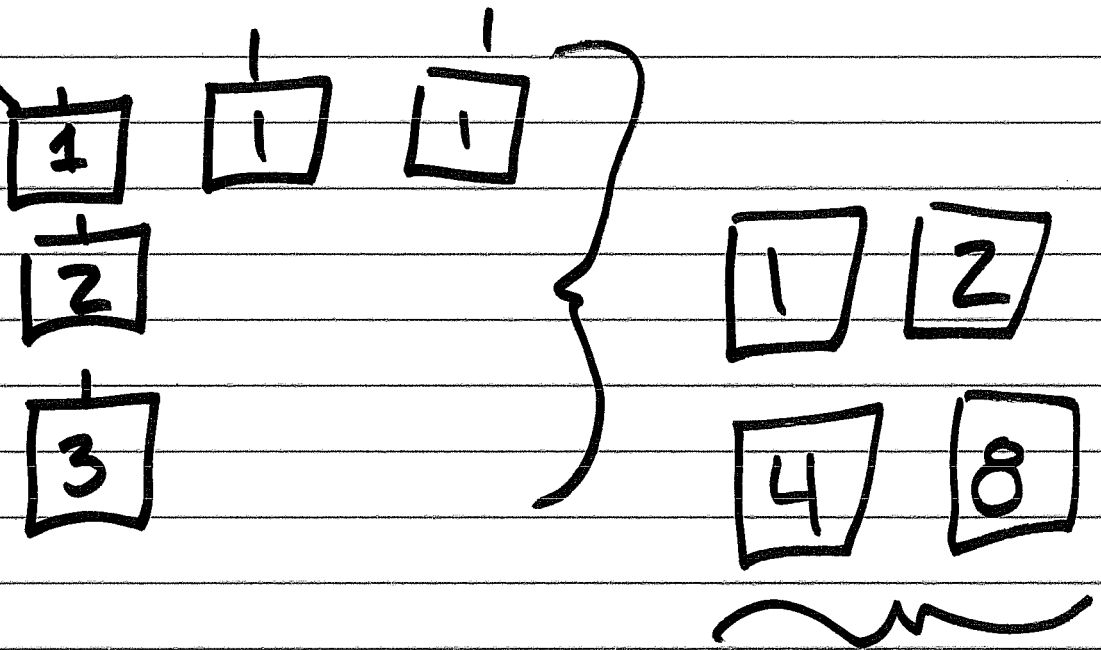
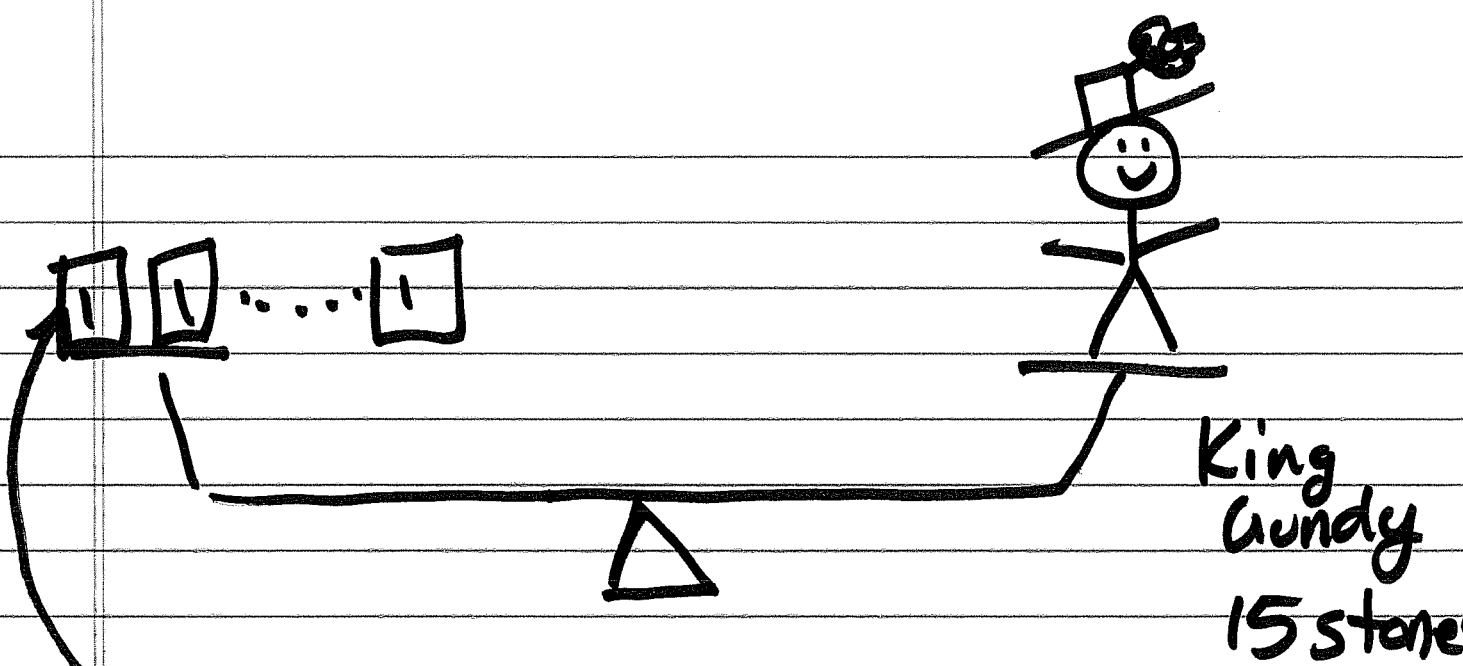
NUMBERS

735

$$7 \times 10^2 + 3 \times 10^1 + 5 \times 10^0$$

↑ ↑ ↑

Base (radix)



$$15 = 1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$$
$$8 + 4 + 2 + 1$$

$$11_{10} = 1011$$

$$1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$$
$$8 + 0 + 2 + 1 = 11_{10}$$

$$1011_2$$

$$1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$$

$$4 + 0 + 1 = 5_{10}$$

$$N = 17_{10}$$

i	v
0	1
1	2
2	4
3	8
4	16
5	32

✓
0
0
0
1

10001

$$1 \times 2^4 + 0 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0 = 17_{10}$$

Binary Digit = Bit

1 0 0 0 1 \equiv 5 bits
MSB LSB

MSB = Most-significant bit

LSB = Least significant bit

$\underbrace{1\ 0\ 0\ 1\ 1\ 1\ 0\ 0}_2 = 8\text{ bits}$

8 bits \equiv 1 byte

4 bits \equiv 1 nibble