Digital Logic

* Number System — Lecture 1

- How to Represent Number
- How to count number

- 1st was unary ~~num~~ number system

we can represent the number in base 1 with any symbols like stone etc.

base 10 → [5 → □ □ □ □ □ or / / / / /] in base one

- Decimal number system

239.625

(1) Representation

200
30
9
.6
.02
.005
239.625

(2) 239.625

$2\times10^{2} + 3\times10^{1} + 9\times10^{0} + 6\times10^{-1} + 2\times10^{-2} + 5\times10^{-3}$

→ weighted code: ex: 10^{2} → 2 (weight, digit)

→ It should be in decreasing power

③

10 | 239		
10 | 23	9	↑
10 | 2	3	|
0	2	|

.695 × 10 = 6.25

.25 × 10 = 2.5

.5 × 10 = 5.0 →

- Base → total number of digit supported by number system.
- Digit → Remainder generated when divided by base

Base → $1 \leq n$

Base n → 0 to n−1 (digits)

Q 234.25 — Base? ≥ 6

239.625 — Base ≥ 10

578.25 — ≥ 9 Base