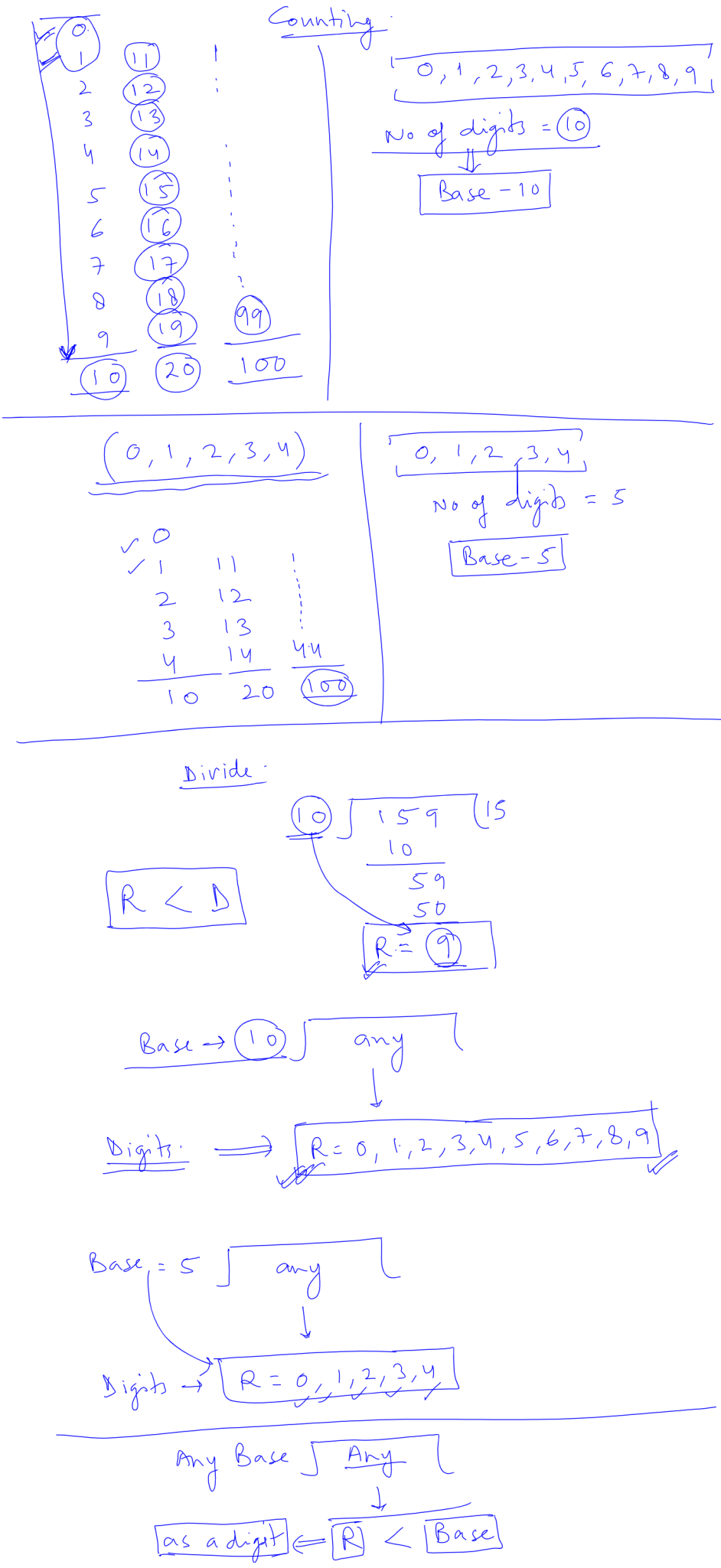
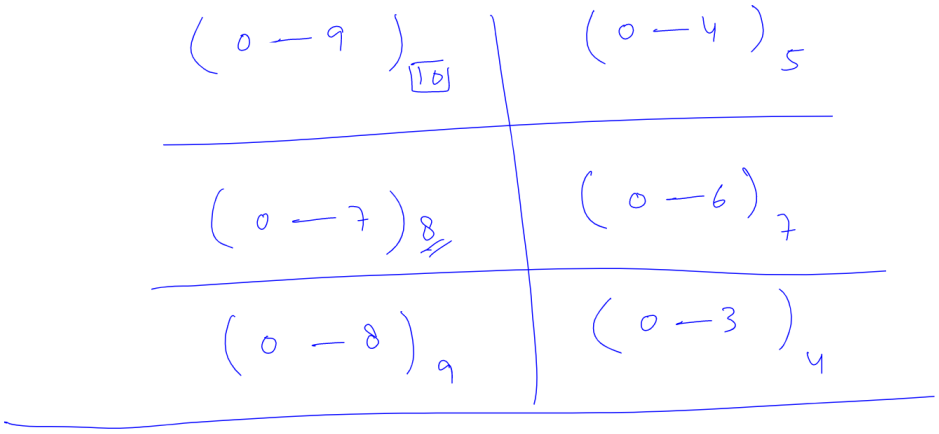
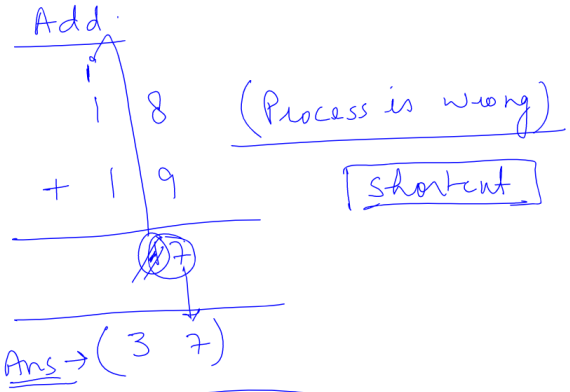
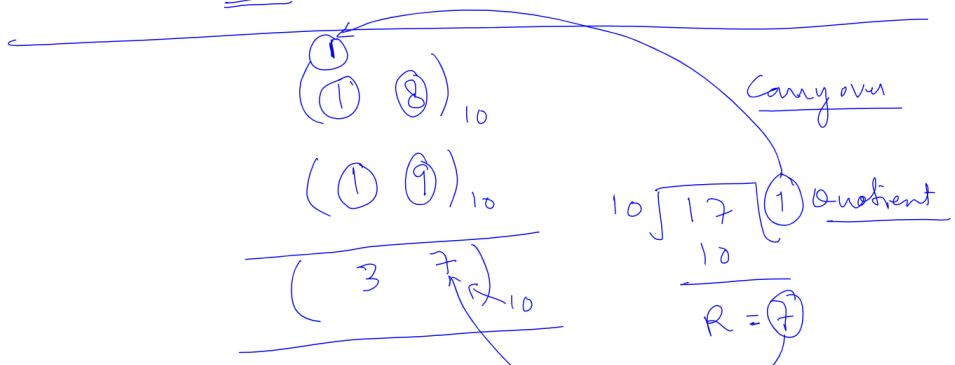
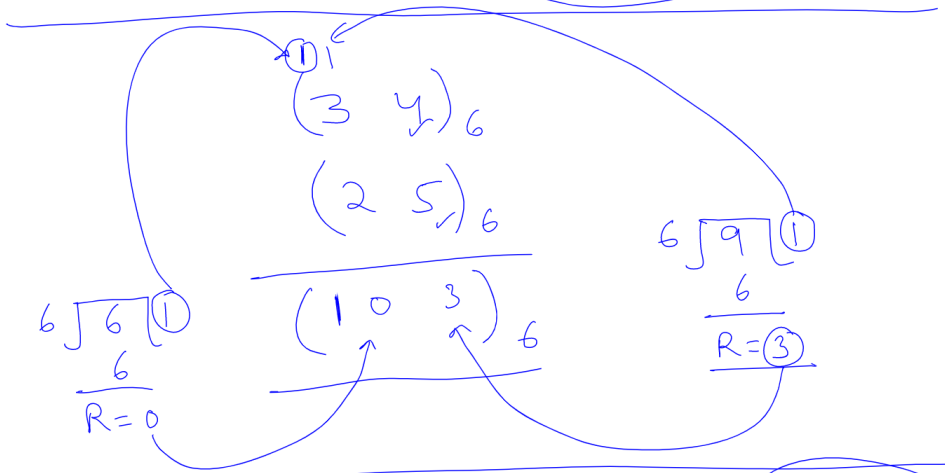
Xie-1-Quant-Speed Maths-1

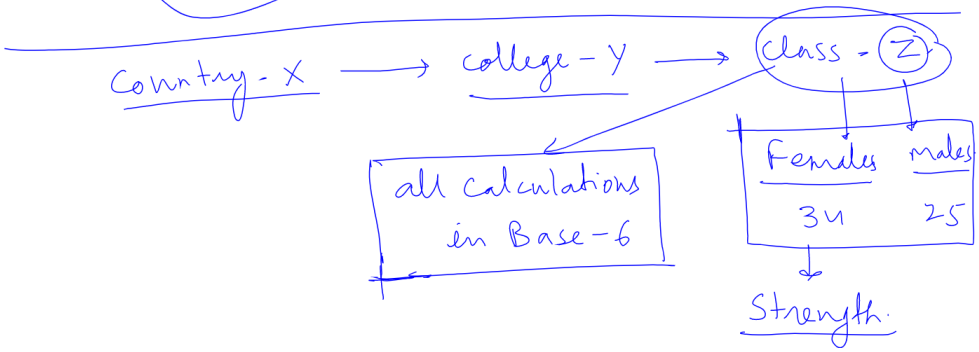

Counting
0, 1, 2, 3, 4, 5, 6, 7, 8, 9
No of digits = 10
Base - 10
(0, 1, 2, 3, 4)
0, 1, 2, 3, 4
No of digits = 5
Base - 5
Divide
R < D
R = 9
Base → 10 ⌋ any
Digits ⟹ R = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
Base = 5 ⌋ any
Digits → R = 0, 1, 2, 3, 4
Any Base ⌋ Any
as a digit ⟸ R < Base


(0 — 9)10
(0 — 4)5
(0 — 7)8
(0 — 6)7
(0 — 8)9
(0 — 3)4


Add.
1 8
+ 1 9
Ans → (3 7)
(Process is wrong)
shortcut


(1 8)10
(1 9)10
(3 7)10
Carry over
10 | 17 | 1 Quotient
10
R = 7


(3 4)6
(2 5)6
(1 0 3)6
6 | 6 | 1
6
R = 0
6 | 9 | 1
6
R = 3


County - X → college - Y → class - Z
all calculations in Base-6
Females 34
males 25
Strength.

$$\begin{array}{r} (2\ 6\ 7)_8 \\ +(3\ 4\ 3)_8 \\ \hline (6\ 3\ 2)_8 \end{array}$$

G → 632 ✓
N → 632 ✓
D → 632 ✓
H → 632 ✓
A → 632 ✓

$$\begin{array}{r} (1\ 8)_{10} \\ +(1\ 9)_{10} \\ \hline (3\ 7)_{10} \end{array} \Rightarrow \begin{array}{r} (3\ 7)_{10} \\ -(1\ 9)_{10} \\ \hline (1\ 8)_{10} \end{array}$$

Subtraction - 1 Base = 10

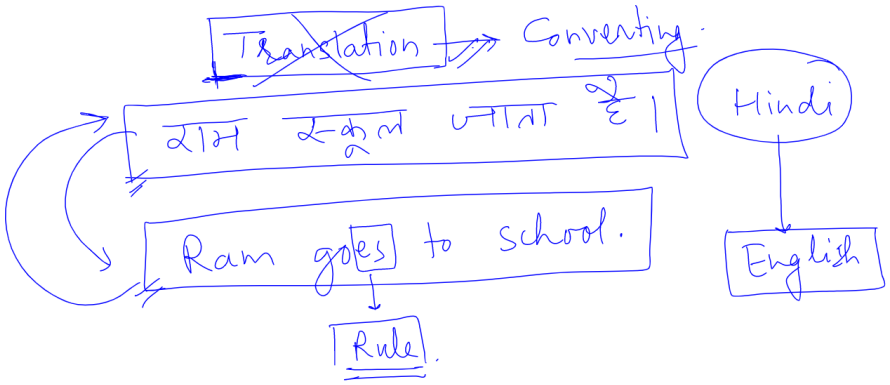
$$\begin{array}{r} (3\ 2\ 7)_{10} \\ (1\ 9)_{10} \\ \hline (1\ 8)_{10} \end{array}$$

---

1 Base = 6 - 1 Base = 6

$$\begin{array}{r} (1\ 0\ 3)_6 \\ +(3\ 4)_6 \\ \hline (0\ 2\ 5)_6 \end{array}$$

$$\begin{array}{r} (2\ 6\ 7)_8 \\ (3\ 4\ 3)_8 \\ \hline (6\ 3\ 2)_8 \end{array} \qquad \begin{array}{r} (6\ 3\ 2)_8 \\ -(2\ 6\ 7)_8 \\ \hline (3\ 4\ 3)_8 \end{array}$$



$(123)_5$ ← Base - 5

$(\ ?\ )_{10}$ ← Base - 10

Place - Values.

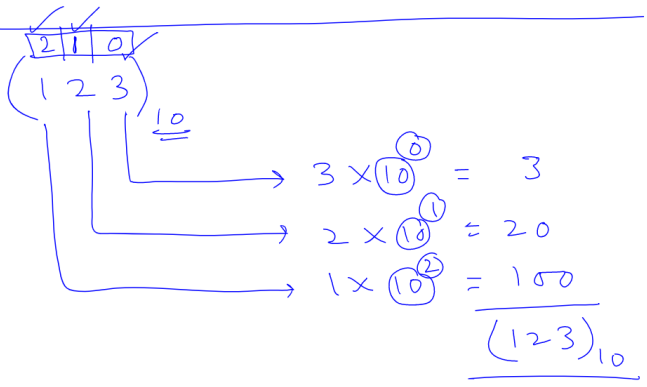
H's	Ten's	unit
1	2	3

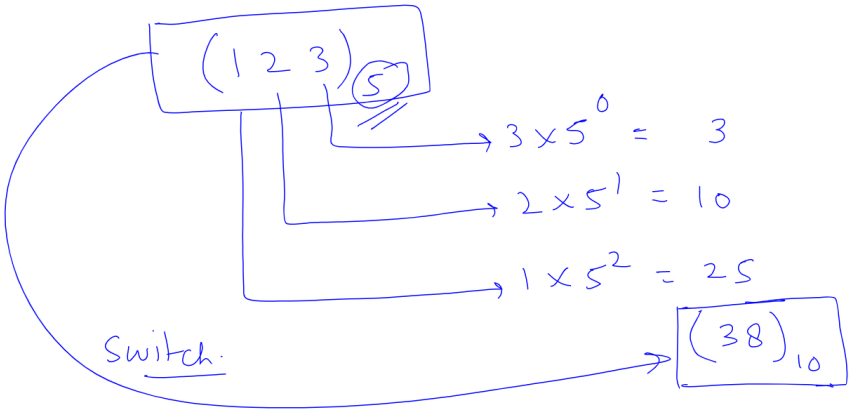
$3 \times 1 = 3$

$2 \times 10 = 20$

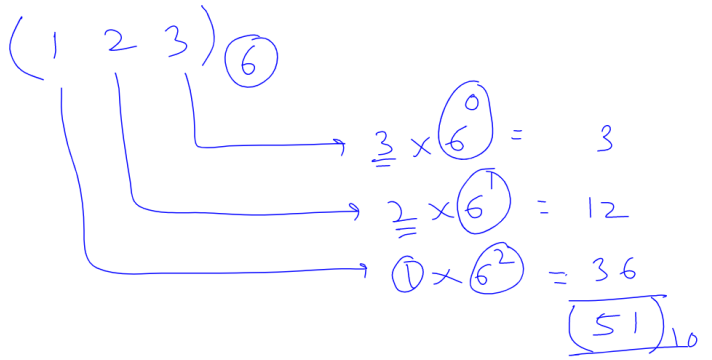
$1 \times 100 = 100$

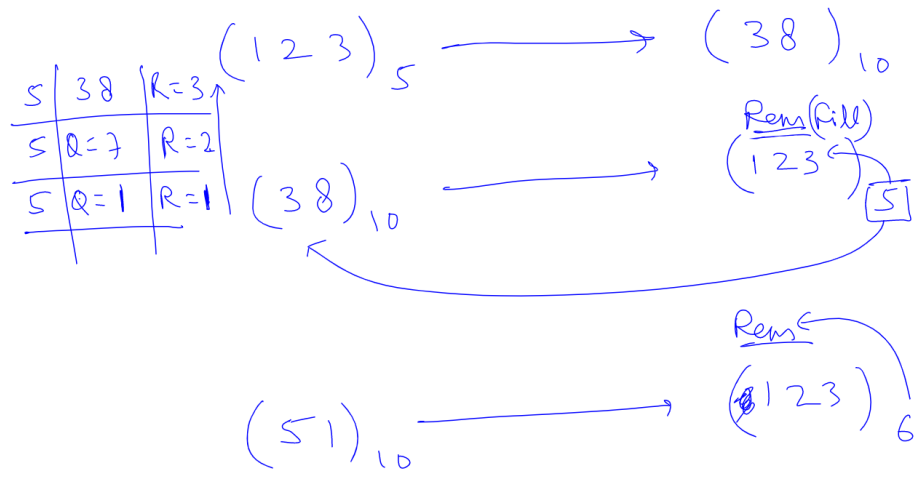
This place $(123)_{10}$ Always Base-10

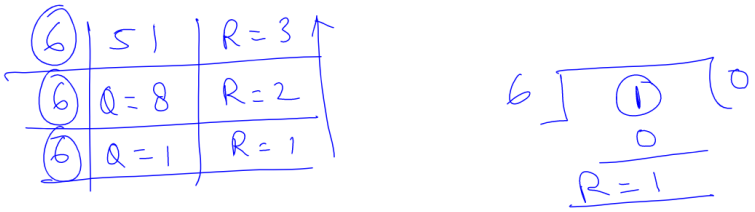


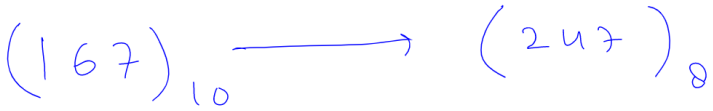


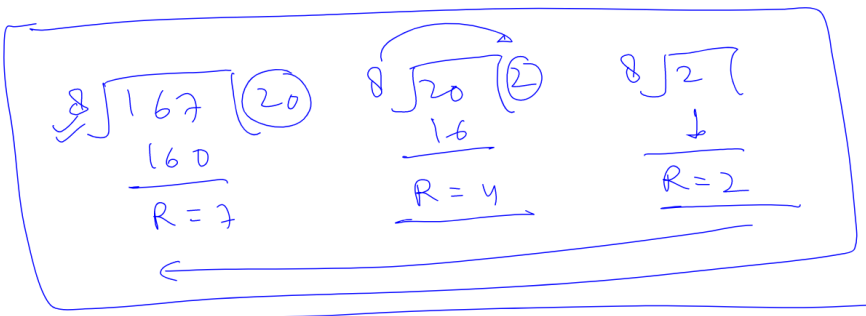
$(123)_6 \rightarrow (\quad)_{10}$











Summary:

Base - System.

Add / Sub / Convert.

Base - 10

10^1 → exactly one digit per step.

Base - 100

10^2 → exactly Two digits per step.

Base - 1000

10^3 → use exactly Three digits per step.

$$\begin{array}{r} {\scriptstyle 1\ \ \ \ } \\ (18)_{10} \\ (19)_{10} \\ \hline (37)_{10} \end{array}$$

$$\begin{array}{r} (18)_{100} \\ (19)_{100} \\ \hline (0217)_{100} \end{array}$$

Calculations

$10 \rightarrow 1$

$100 \rightarrow 2$

$1000 \rightarrow 3$

$$\begin{array}{r} (18)_{1000} \\ (19)_{1000} \\ \hline (002017)_{1000} \end{array}$$