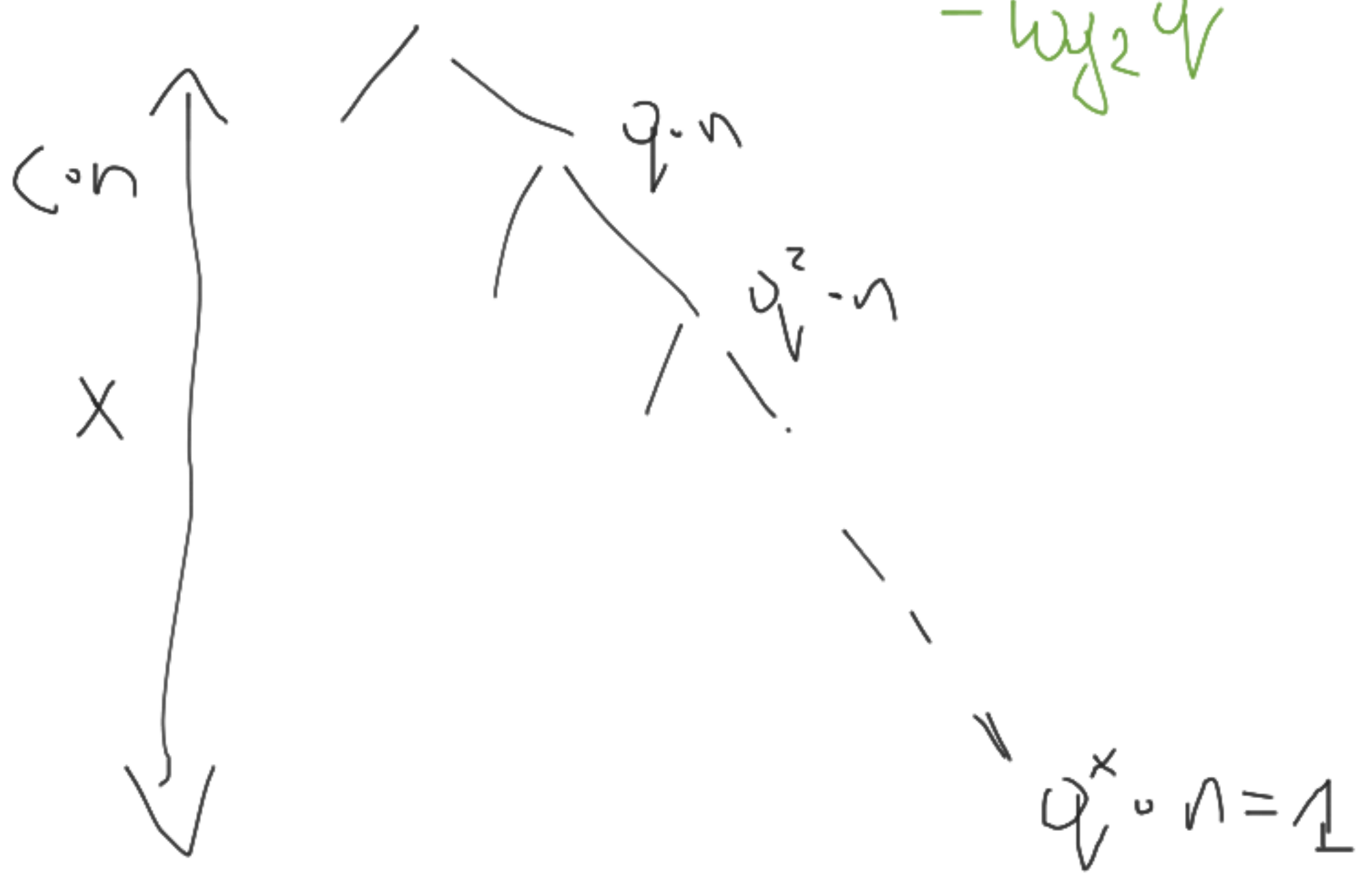


$$X = \frac{\log_2 n}{-\log_2 q}$$



$$q^X = \frac{1}{n} \quad |^{-1}$$

$$\left(\frac{1}{q}\right)^X = n \quad | \log$$

$$\log_q n = \frac{\log_2 n}{\log_2 q}$$

$$X = \log_{\frac{1}{q}}(n)$$

$$X = -\log_q(n)$$

$$O(X \cdot C \cdot n) = O(-\log_q(n) \cdot n)$$

$$= O(\log_2 n \cdot n)$$

$$\log_a b \cdot \log_b c = \log_a c$$

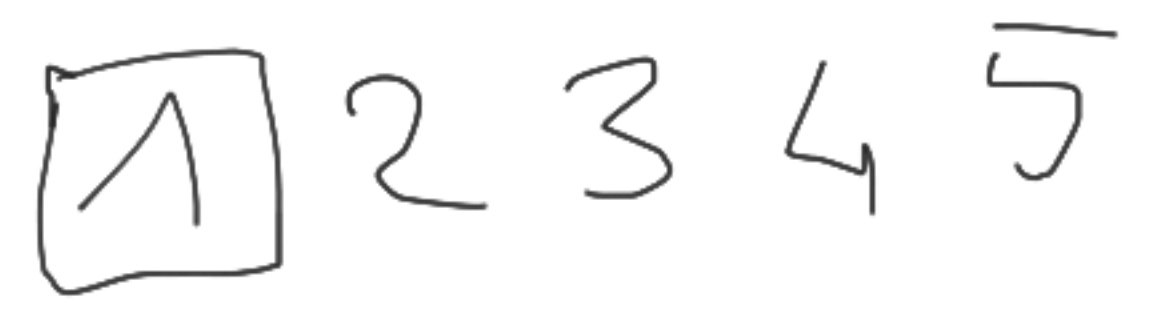
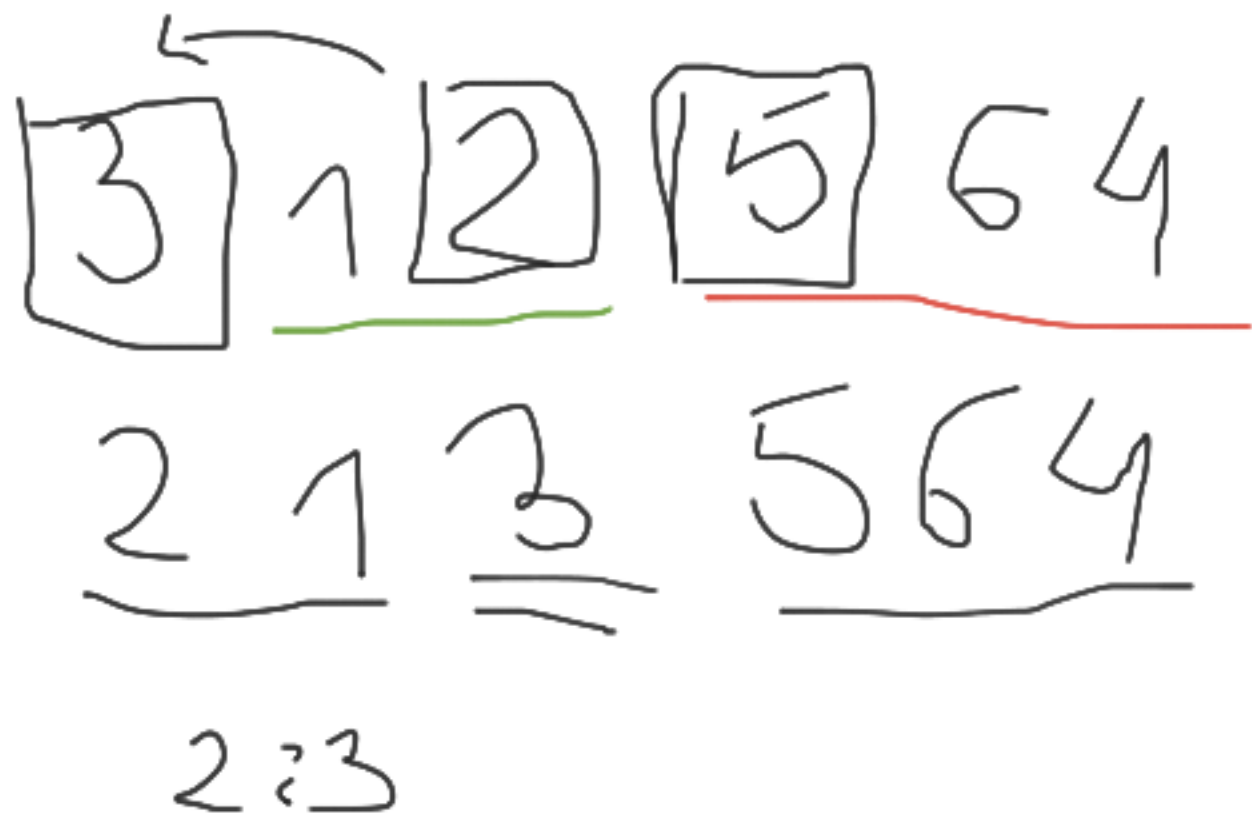
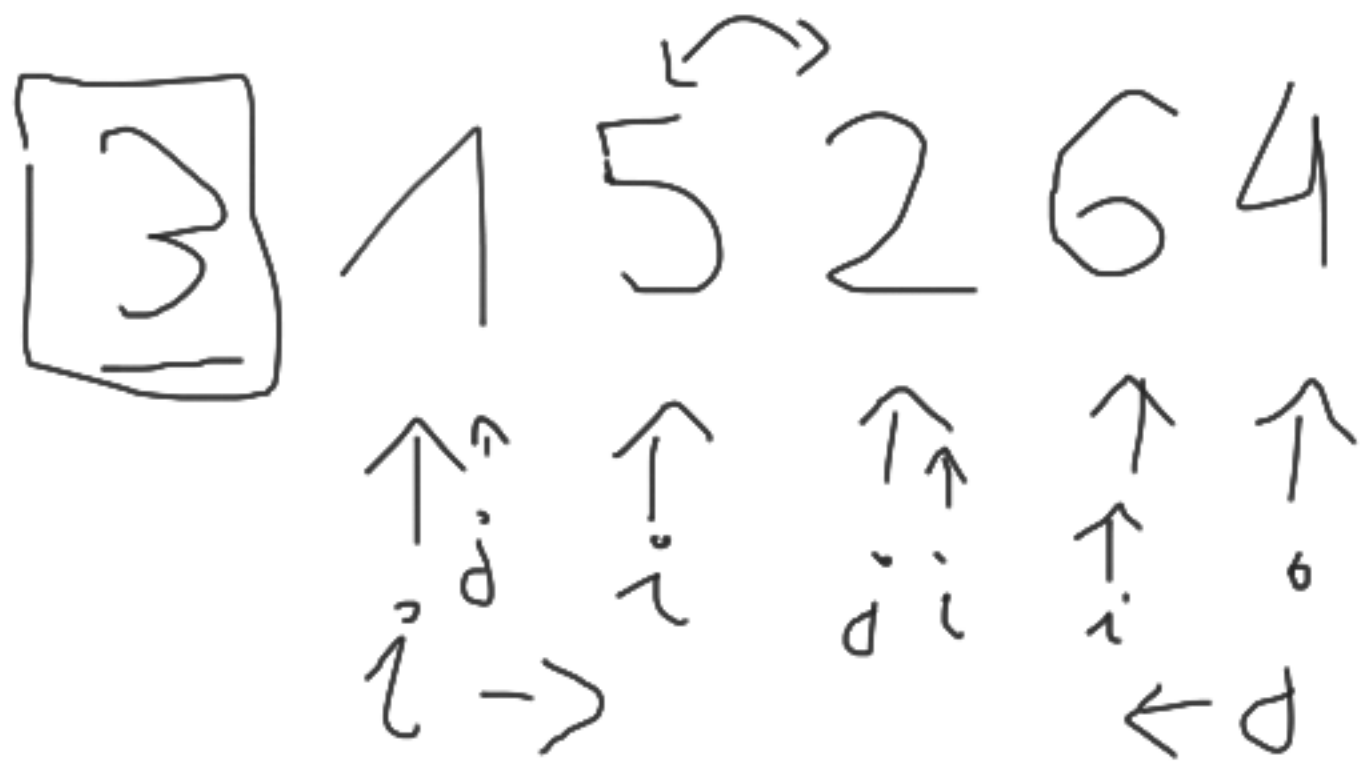
$$\log_2 q \cdot \log_q n = \log_2 n$$

2 od 7/13

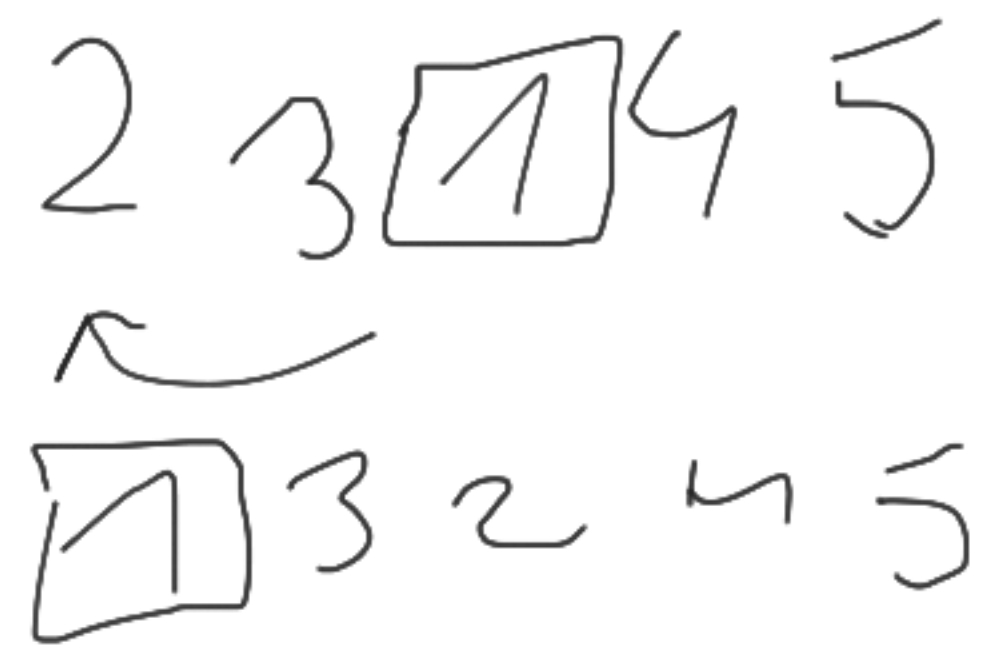
1₁ 2₁ 1₂ 3₁ 2₂
1₁ 1₂ 2₁ 2₂ 3₁



2nd 8



0:4

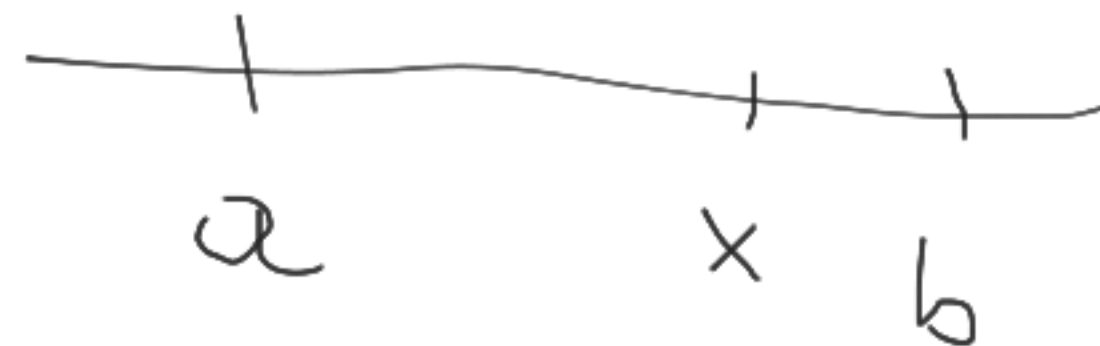
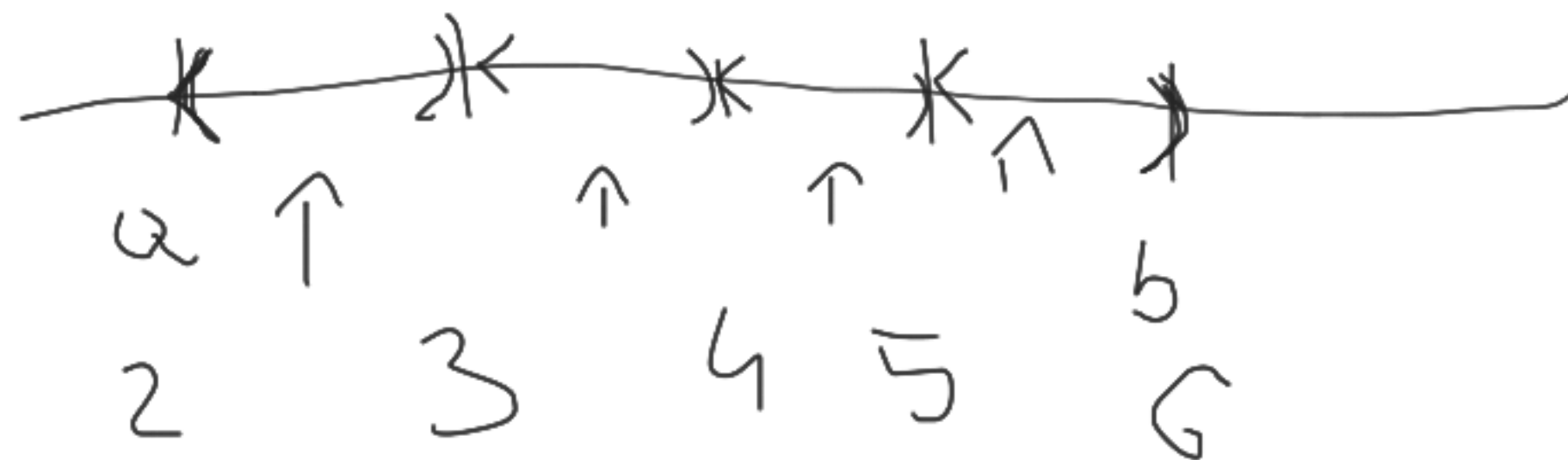


2ad 2

(a, b) $k=4$

$n = \# K \cup b$
 $x \in (a, b)$

$f: (a, b) \rightarrow \{0, 1\}$



1 $\square \rightarrow [2, 5] \rightarrow [2, 5]$
2 \square
3 $\square \rightarrow [5, 0]$
4 $\square \rightarrow [5, 1]$

$f(a) = 0$
 $f(b) = 1$



2nd 2nd

(a, b)

(0, 1)

$$n = 3$$

$$f(a, b, x)$$

$$\left[\frac{x-a}{b-a} \cdot n \right]$$

$$x = \frac{1}{6} \cdot 3 = \frac{3}{6} = 0$$

$$\frac{2}{3} \cdot 3 = 2$$

$$\frac{3}{3} \cdot 3 = 3$$

0, 1, 2, 3

2nd 3

$k = 13$

0 6 0 6 0 6 0 6 0 6 0 6

$$k^0, k^1, k^2, \dots, k^{n-1}$$

$\{0, 1, 2, \dots, n-1\}$

0 1 2 3 4 5 6 7 8 9

10 11 12 13 14 15 16 17 18 19

20 21 22 23 24 25 26 27 28 29

30 31 32 33 34 35 36 37 38 39

$$\begin{array}{ccccccc} 3^0 & 3^1 & & & 3^2 & & 3^3 \\ 1 & 3 & & & 9 & & 27 \\ \hline 1-3 & 4-6 & & & 7-9 & & 10-18 \quad 19-27 \\ \hline & & & & & & 1-9 \end{array}$$

$x = 247831097$

$k: 8 7 6 5 4 3 2 1 0$

24783

$k = 4$

$$x = x \% 10^{k+1}$$

$$x = x / 10^k$$

$$\left\lfloor \frac{x}{10^k} \right\rfloor \% 10$$