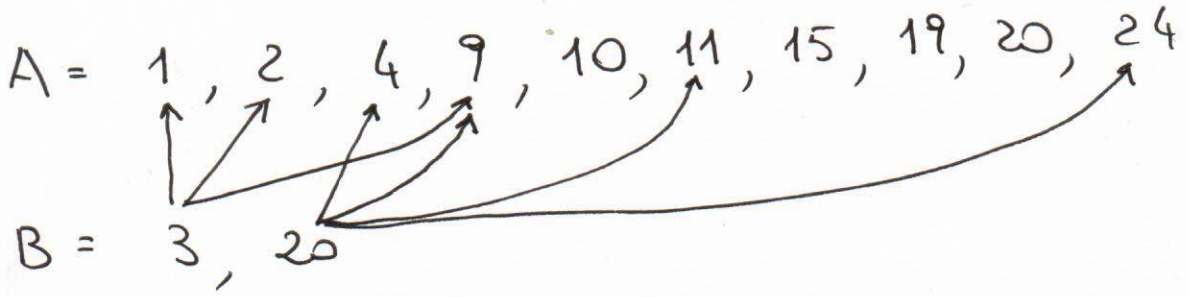
EX 2.1



① 3 is compared with 1, 2, 9 and then Binary search is performed on the block [4]

② 20 is compared with 4, 9, 11, 24 and then Binary search is performed on the block [15, 19, 20]

EX 2.2

Let us assume that $\pi(x) = 2x \bmod 29$

A =	1	2	4	9	10	11	15	19	20	24
$\pi(A)$ =	2	4	8	18	20	22	1	9	11	19

$B = 3 \quad 20 \longrightarrow \pi(B) = 6 \quad 11$

$\frac{n}{L} = \frac{10}{2} = 5$, assuming $L = 2$

So $U = [1, 29]$ is partitioned in 5 buckets $\rightarrow$ size $= \left\lceil \frac{29}{5} \right\rceil = 6$

$B_1 = [1, 5]$ $B_2 = [6, 10]$ $B_3 = [11, 12, 17]$ $B_4 = [18, 23]$ $B_5 = [24, 29]$

Therefore all elements of B end up in B_2, which is the only bucket to look at in A $\Rightarrow$ $\{4, 19, 20\} \subseteq B_2$
π 8 9 11

the algorithm then intersect $\underbrace{(4, 19, 20)}_{A} \cap \underbrace{(3, 20)}_{B} = 20$

The intersection could have been done over π: $(8, 9, 11) \cap (6, 11)$
and then compute $\pi^{-1}(11) = 20$.