In: N - arr size : 10^5
X - t increment
K - total ⊖ number

$\overset{0}{|} \; t_1 \; | \; t_2 \; | \; ... \; \overset{N-1}{|t_N|}$

general attempt #1
$t_{current} = y$; What is Σ?

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$0 < y < t_1 \Rightarrow \Sigma \equiv 0$

$t_N < y$

$$\Sigma = \int_0^{t_1} \begin{cases} t_1 : \Sigma_1 : \\ \text{equally} \\ \text{timer.} \end{cases}$$

$\Sigma_i = \dfrac{y - t_i}{x} + H(y - t_i)$
                                    ↑
                            Step function
                            $H(0) = 1$

1 assumption: we sort
input array asc.

2. max total time
single timer $t_1 = 10^9$
$X = 10^9$; $K = 10^9$
total time : $10^9 \cdot 10^9 = 10^{18}$

3 Σ_{max} is long (8 bytes)
memory limit in longs is: 33M

4 stronger assumption:
If $t_j > t_5$ and $(t_i - t_5) \% K == 0$
we can ignore it ||
                            $t_j \bmod K = t_5 \bmod K$
                                    ↓
we can maintain remain det
array and keep the lowest
timer

$\Sigma(t)$: 1. $m = \max i : t_i \leq t$. In that case

$$\Sigma(t) = \sum_{i=1}^{m} \Sigma_i(t) = \sum_{i=1}^{m} \frac{t - t_i}{x} + 1$$

$$\Sigma(t) = m + \sum_{1}^{m} \frac{t - t_i}{x}$$

search interval : N : timer count
X : increment
K : target.

at t_N - max : all timers start working

$$t_N \qquad t_N + X \qquad t_N + 2X \quad \cdots$$
$$N \qquad 2N \qquad\qquad 3N \quad \cdots$$

$$kN \geqslant K \quad ; \quad k \geqslant \frac{K}{N} \quad ; \quad k_{max} = ceil\left(\frac{K}{N}\right)$$

$$t_{K_{max}} = t_N + (k_{max} - 1)X = t_N + \frac{K}{N}X$$

$$t_{Kmax} \ 1 : \qquad 6 + \frac{50}{6} = 6 + 8 = 14$$

$$t_{kmax} \ 2 : \qquad 22 + \frac{12 \cdot 7}{5} = 22 + 16 = 38$$