

9. Find Position of an Element in a Sorted Array of Infinite numbers.

0	1	2	3	4	5	6	7	8	9	10	40
3	5	8	10	11	14	15	90	100	130	142	...

\uparrow \uparrow target > $a[r]$ $r = 2 * r$

0	1	2	3	4	5	6	7	8	9	10	40
3	5	8	10	11	14	15	90	100	130	142	...

\uparrow \uparrow target > $a[r]$ $r = 2 * r$

0	1	2	3	4	5	6	7	8	9	10	40
3	5	8	10	11	14	15	90	100	130	142	...

\uparrow \uparrow $130 > 11$

0	1	2	3	4	5	6	7	8	9	10	40
3	5	8	10	11	14	15	90	100	130	142	...

\uparrow \uparrow $130 > 100$

0	1	2	3	4	5	6	7	8	9	10	16	40
3	5	8	10	11	14	15	90	100	130	142	...	180

\uparrow \uparrow

target < $a[r]$ \rightarrow search in $[l, r]$

Key point:

- In each iteration, double the r
- check target & $a[r]$