

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

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

, target = 130

↑   ↑  
l   r   target > a[r]   r = 2 \* r

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

↑   ↑  
l   r   target > a[r]   r = 2 \* r

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

↑   ↑  
l   r   130 > 11

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

↑   ↑  
l   r   130 > 100

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

↑   ↑  
l   r

target < a[r] → search in [l, r]

Key point :

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