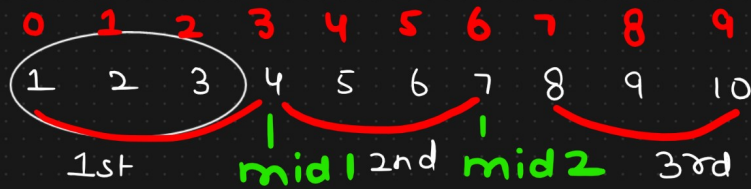


Ternary Search

↳ Sorted array

↳ Search space into three parts



$$\underline{\text{mid1}} = l + (r - l) // 3 = 0 + 9 // 3 = 3 \quad \underline{l = 0, r = 9}$$

$$\underline{\text{mid2}} = r - (r - l) // 3 = 9 - 9 // 3 = 6$$

$x = 5$ → Searching element

$$\text{arr}(\text{mid1}) == x$$

↳ return mid1

$$\text{arr}(\text{mid2}) == x$$

↳ return mid2

$$\underline{\underline{x = 2}}$$

→ 4

$$\underline{\underline{x < \text{arr}(\text{mid1})}}$$

$\underline{\underline{r = \text{mid1} - 1}} \Rightarrow$ 1st search space

→ 7

$$x > \text{arr}(\text{mid2})$$

$\underline{\underline{l = \text{mid2} + 1}} \Rightarrow$ 3rd search space

$$\underline{\underline{x = 9}}$$

else:

$$\text{mid1} + 1, \text{mid2} - 1$$

↳ 2nd search space