$$2^3 = 8 \leftrightarrow 3 = \log_2 8 \quad \rightarrow \quad O(2^3 + 1) \rightarrow O(\log_2(n) + 1) \underset{\downarrow}{\overset{\text{more than}}{\text{half the array}}}$$

$$\boxed{O(\log(n))}$$

| | null | $2^0$ | $2^1$ | $2^2$ | $2^3$ | $2^4$ | $2^5$ | $2^6$ | $2^7$ |
|---|---|---|---|---|---|---|---|---|---|
| Array Size | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Iterations | 0 | 1 | 2 | 2 | 3 | 3 | 3 | 3 | 4 |

Array Size = 0     [   ]
Value = 23     23 > null ?
               0 iterations

$2^0$  Array Size = 1     [1]   1 iteration
Value = 23     23 > 1 ?
               1 iteration

$2^1$  Array Size = 2     [1, 2]   2 iterations
Value = 23     23 > 1 ?
               23 > 2 ?
               2 iterations

$2^2$  Array Size = 3     [1, 2, 3]   2 iterations
Value = 23     23 > 2 ?
               23 > 3 ?
               2 iterations

$2^3$  Array Size = 4     [1, 2, 3, 4]   3 iterations
Value = 23     23 > 2 ?
               23 > 3 ?
               23 > 4 ?
               3 iterations

$2^4$  Array Size = 5     [1, 2, 3, 4, 5]   3 iterations
Value = 23     23 > 3 ?
               23 > 4 ?
               23 > 5 ?
               3 iterations

$2^5$  Array Size = 6     [1, 2, 3, 4, 5, 6]   3 iterations
Value = 23                                     4 iterations
               23 > 4 ?
               23 > 5 ?
               33 > 6 ?
               3 iterations

$2^6$  Array Size = 7     [1, 2, 3, 4, 5, 6, 7]   3 iterations
Value = 23                                        4 iterations
               23 > 5 ?
               23 > 6 ?
               23 > 7 ?
               3 iterations

$2^7$  Array Size = 8     [1, 2, 3, 4, 5, 6, 7, 8]   4 iterations
Value = 23                                           5 iterations
               23 > 5 ?
               23 > 6 ?
               23 > 7 ?
               23 > 8 ?
               4 iterations