

If 1 item takes 1 second to process, 100 items
take 300 seconds to process

$O(N \log(N))$

Code Example

To avoid covering sorting, this is not a practical code example, but purely demonstrates the concept of $O(N \log(N))$.

This code block simulates performing a logarithmic function on every item in an array.

```
38 | log(8);
39 | function log(n) {
40 |   let j = 1;
41 |   for (let k = 0; k < n; k++) {
42 |     for (let i = n; i > 0.999; i /= 2) {
43 |       let result = i;
44 |       console.log(`The result of iteration ${j} is ${result}`);
45 |       j++;
46 |     }
47 |   }
48 | }
```

```
The result of iteration 1 is 8
The result of iteration 2 is 4
The result of iteration 3 is 2
The result of iteration 4 is 1
The result of iteration 5 is 8
The result of iteration 6 is 4
The result of iteration 7 is 2
The result of iteration 8 is 1
The result of iteration 9 is 8
The result of iteration 10 is 4
The result of iteration 11 is 2
The result of iteration 12 is 1
The result of iteration 13 is 8
The result of iteration 14 is 4
The result of iteration 15 is 2
The result of iteration 16 is 1
The result of iteration 17 is 8
The result of iteration 18 is 4
The result of iteration 19 is 2
The result of iteration 20 is 1
The result of iteration 21 is 8
The result of iteration 22 is 4
The result of iteration 23 is 2
The result of iteration 24 is 1
The result of iteration 25 is 8
The result of iteration 26 is 4
The result of iteration 27 is 2
The result of iteration 28 is 1
The result of iteration 29 is 8
The result of iteration 30 is 4
The result of iteration 31 is 2
The result of iteration 32 is 1
```