

what are Higher-order Functions in JavaScript
Higher-order functions are functions that either

- (1) Take other fun
- (2) Return a function as their result

```
function calculate (operation, a, b) {  
  return operation(a, b);  
}
```

```
const add = (x, y) => x + y;
```

```
const multiply = (x, y) => x * y;
```

```
console.log(calculate(add, 5, 3));  
console.log(calculate(multiply, 5, 3));
```

Difference between map, forEach, reduce, filter, and sort

map
Transforms each element in an array and returns a new array with the transformed elements.

ForEach
Iterates through an array and executes a function for each element. Does not return anything.

reduce
Reduce an array to a single value by accumulating results based on a callback function.

filter
filter elements is an array based on a condition and returns a new array with elements that satisfy the condition.

Sort
Sort the elements of an array in place based on a comparison function.

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 How Higher - Order Functions Improve Code Readability and Reusability.

modular code

HOFs encapsulate behavior, making code easier to understand and debug

Less Repetition

HOFs allow the reuse of logic by passing function as argument

Declarative Style

They encourage a declarative programming style making the code concise and expressive.