

2. Give a write up Difference between copy by value and copy by reference.

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Copy by value

```
let x = 10 ;  
let y = x ;  
  
x = 20 ;  
console.log (x, y);
```

o/p
20, 10

Copy by reference

```
let x = { value : 10 };  
let y = x ;  
  
x.value = 20 ;  
console.log (x, y);
```

o/p
20, 20

```
graph LR  
    x["x  
1234"] -.-> obj["1234  
{value: 10}"]  
    y["y  
1234"] -.-> obj
```

Note → Copied by reference of their addresses.

by value

```
let num = 10 ;  
  
function increase (num) {  
    num ++ ;  
}  
  
increase (num);  
console.log (num);
```

o/p
10

↳ despite of num ++, because it is copied by value.

↳ The number will increase to 11 ~~at~~ locally in the function. But globally it stays 10.

Same with var num = 10;

by reference

```
let obj = { value : 10 };  
  
function increase (obj) {  
    obj.value ++ ;  
}  
  
increase (obj);  
console.log (obj);
```

o/p
{ value : 11 }

↳ Here, there are ~~no~~ 2 independent variables, instead, 1 variable copied by its address reference.

↳ It changes both globally & locally because of its address being used as a reference.