

PASS BY VALUE

- Parameters of primitive data types are passed by value in Java
 - The data is copied into the parameter variable
 - The original variable is not modified
-

MAIN

```
int number = 5;  
mutate(number);  
System.out.println(number);  
// 5 is printed
```

METHOD

```
public static void mutate(int num)  
{  
    num = 10;  
}
```

↳ only updates the parameter
not the original variable in
Main

PASS BY REFERENCE

- Parameters that are objects are passed by reference in Java
- The reference is copied, meaning both the original variable and the parameter reference the same place in memory
- The original variable is modified

MAIN holds a memory address
↓
`int[] array1 = { 1, 2, 3 };`
`zero(array1);`
`System.out.println(array1);`
`// [0, 0, 0] is printed`

METHOD memory address is copied into here
↓
`public static void zero(int[] arr)`
`{`
`for (int i=0; i<arr.length; i++)`
`{`
`arr[i] = 0;`
`}`
`}`

```
graph LR
    array1[reference] --> mem[0 0 0]
    arr[reference] --> mem
```