

# Derivation of the Answers to Example 2 on Page 1 of:

<http://149.4.211.94/316/FinalExamExercises.pdf>

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# **Call/Pass by Value**

**Comment:** Suppose a function **f** with a formal parameter **p** is called this way: **f(v);**  
If **f**'s argument is passed **by value**, then when **f** executes an assignment **p = ... ;** the assignment stores something in **p**'s location but **does not modify the contents of v's location**.

**In Java and Lisp, all arguments are passed by value.**

**Note:** If the argument variable **v** stores an object reference, then that object reference will be copied into **f**'s formal parameter **p** when the argument is passed by value, and pass by value doesn't prevent **f** from using **p** to modify the object **v** refers to!

**Warning:** Don't confuse *pass by reference* (as described in the course reader) with *passing an object reference by value* (as described in the **Note**). The **Comment** applies to the latter but does **not** apply to pass by reference.

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**test:**

x	1
y	0

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1 6
a[2]	2

**test:**

x	1
y	0

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

x	1
y	0

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

x	1	4
y	0	

**Output:**



```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

<b>static:</b>		
e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	
<b>test:</b>		
x	1	4
y	0	-1

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

x	1	4
y	0	-1

Output: x y a[0] a[1] a[2] e  
4 -1

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static:
    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

Output: x y a[0] a[1] a[2] e  
4 -1

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static:
    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

Output:    **x**   **y**   **a[0]**   **a[1]**   **a[2]**   **e**  
          4   -1   0        6        2        2

# **Call/Pass by Value-Result**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**Output:**

## PASS BY VALUE-RESULT

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

<b>static:</b>	
e	1
a[0]	0
a[1]	1
a[2]	2
<b>test:</b>	
x	1
y	0

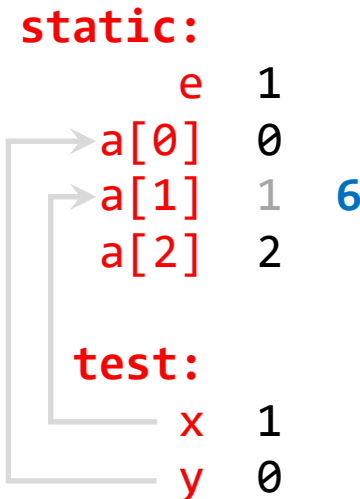
**Output:**

## PASS BY VALUE-RESULT

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



**Output:**

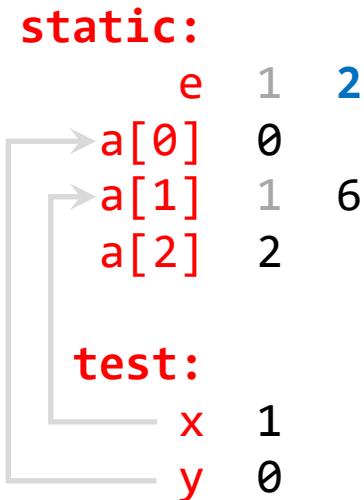


## PASS BY VALUE-RESULT

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



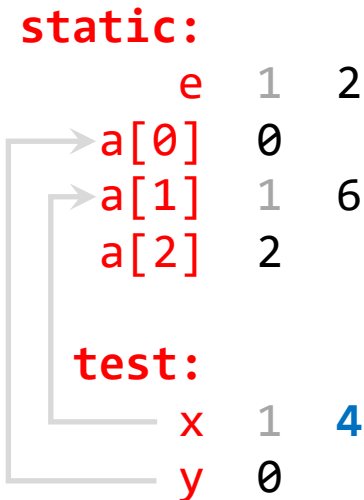
**Output:**

## PASS BY VALUE-RESULT

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



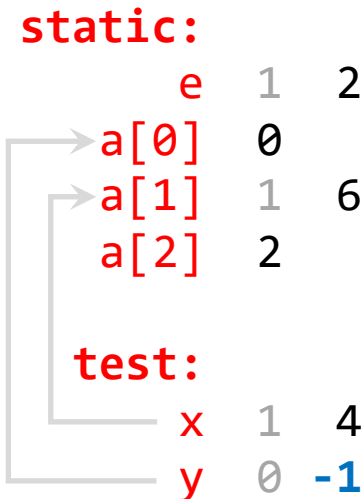
**Output:**

## PASS BY VALUE-RESULT

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



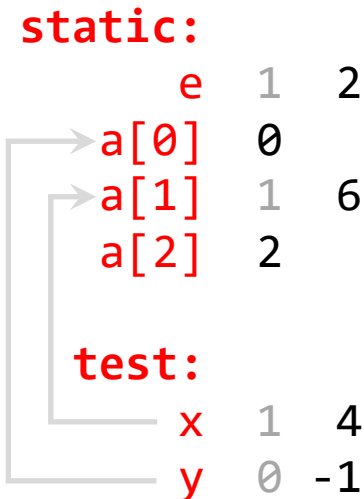
**Output:**

## PASS BY VALUE-RESULT

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



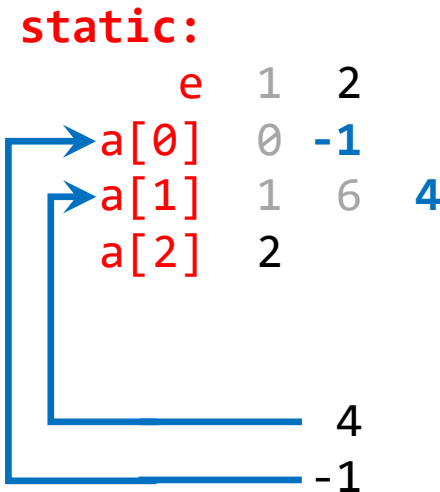
Output:    x   y   a[0]   a[1]   a[2]   e  
          4 -1

## PASS BY VALUE-RESULT

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



**Output:**    `x`   `y`   `a[0]`   `a[1]`   `a[2]`   `e`  
              4   -1

## PASS BY VALUE-RESULT

```
class FinalExam {  
    static int e = 1;  
    static int a[] = {0,1,2};  
  
    public static void main(String args[])  
    {  
        test(a[e], a[e-1]);  
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);  
    }  
}
```

**static:**

e	1	2
a[0]	0	-1
a[1]	1	6
a[2]	2	4

```
static void test (int x, int y)  
{  
    a[1] = 6;  
    e = 2;  
    x += 3;  
    y--;  
    System.out.print(x + " " + y + " ");  
}
```

**Output:**

x	y	a[0]	a[1]	a[2]	e
4	-1	-1	4	2	2

# **Call/Pass by Value-Result (Algol W)**

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**Output:**



## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**test:**

a[e]	x	1
a[e-1]	y	0

**Output:**

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

a[e]	x	1
a[e-1]	y	0

**Output:**

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

a[e]	x	1
a[e-1]	y	0

**Output:**

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

a[e]	x	1	4
a[e-1]	y	0	

**Output:**

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

a[e]	x	1	4
a[e-1]	y	0	-1

**Output:**

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }
}
```

```
static void test (int x, int y)
{
    a[1] = 6;
    e = 2;
    x += 3;
    y--;
    System.out.print(x + " " + y + " ");
}
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

a[e]	x	1	4
a[e-1]	y	0	-1

Output:    x   y   a[0]   a[1]   a[2]   e  
          4  -1

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};


    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }
}
```

```
static void test (int x, int y)
{
    a[1] = 6;
    e = 2;
    x += 3;
    y--;
    System.out.print(x + " " + y + " ");
}
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

a[e]	4
a[e-1]	-1



**Output:**    x   y   a[0]   a[1]   a[2]   e  
             4   -1

## PASS BY VALUE-RESULT (ALGOL W)

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6 -1
a[2]	2	4

**Output:**

x	y	a[0]	a[1]	a[2]	e
4	-1	0	-1	4	2



# **Call/Pass by Reference**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**Output:**

## PASS BY REFERENCE

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**test:**

x	
y	

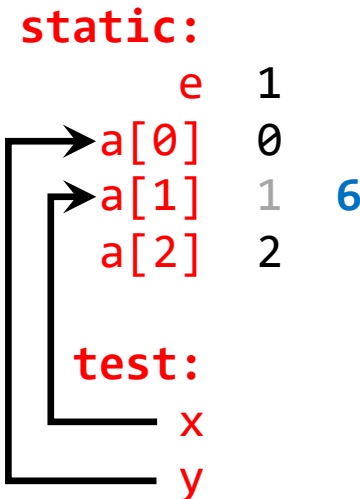
**Output:**

## PASS BY REFERENCE

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



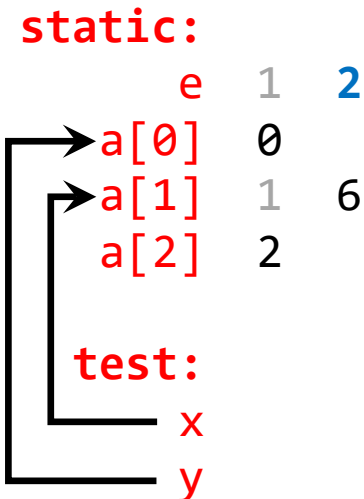
**Output:**

## PASS BY REFERENCE

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



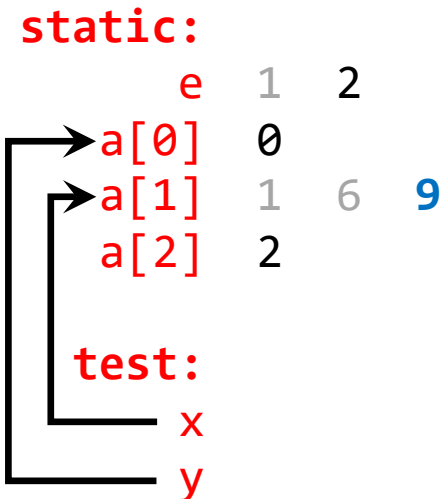
**Output:**

## PASS BY REFERENCE

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



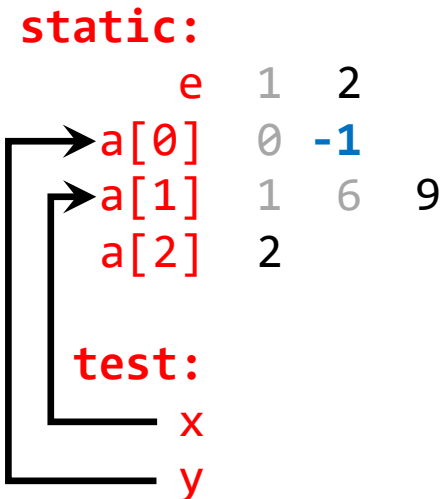
**Output:**

## PASS BY REFERENCE

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```



**Output:**

## PASS BY REFERENCE

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2	
a[0]	0	-1	
a[1]	1	6	9
a[2]	2		

**test:**

x	
y	

Output: x y a[0] a[1] a[2] e  
9 -1



## PASS BY REFERENCE

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }
}
```

**static:**

e	1	2
a[0]	0	-1
a[1]	1	6
a[2]	2	9

```
static void test (int x, int y)
{
    a[1] = 6;
    e = 2;
    x += 3;
    y--;
    System.out.print(x + " " + y + " ");
}
}
```

**Output:**    x   y   a[0]   a[1]   a[2]   e  
             9 -1

## PASS BY REFERENCE

```
class FinalExam {  
    static int e = 1;  
    static int a[] = {0,1,2};  
  
    public static void main(String args[])  
    {  
        test(a[e], a[e-1]);  
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);  
    }  
}
```

**static:**

e	1	2
a[0]	0	-1
a[1]	1	6
a[2]	2	9

```
static void test (int x, int y)  
{  
    a[1] = 6;  
    e = 2;  
    x += 3;  
    y--;  
    System.out.print(x + " " + y + " ");  
}
```

**Output:**

x	y	a[0]	a[1]	a[2]	e
9	-1	-1	9	2	2

# **Call/Pass by Name**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1
a[0]	0
a[1]	1
a[2]	2

**test:**

a[e]	x
a[e-1]	y

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

a[e]	x
a[e-1]	y

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	

**test:**

a[e]	x
a[e-1]	y

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6
a[2]	2	5

**test:**

a[e]	x
a[e-1]	y

**Output:**



```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }

    static void test (int x, int y)
    {
        a[1] = 6;
        e = 2;
        x += 3;
        y--;
        System.out.print(x + " " + y + " ");
    }
}
```

**static:**

e	1	2	
a[0]	0		
a[1]	1	6	5
a[2]	2	5	

**test:**

a[e]	x
a[e-1]	y

**Output:**

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }
}
```

```
static void test (int x, int y)
{
    a[1] = 6;
    e = 2;
    x += 3;
    y--;
    System.out.print(x + " " + y + " ");
}
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6 5
a[2]	2	5

**test:**

a[e]	x
a[e-1]	y

Output:    x   y   a[0]   a[1]   a[2]   e  
          5   5

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6 5
a[2]	2	5

```
static void test (int x, int y)
{
    a[1] = 6;
    e = 2;
    x += 3;
    y--;
    System.out.print(x + " " + y + " ");
}
}
```

**Output:**    x   y   a[0]   a[1]   a[2]   e  
             5   5

```
class FinalExam {
    static int e = 1;
    static int a[] = {0,1,2};

    public static void main(String args[])
    {
        test(a[e], a[e-1]);
        System.out.println(a[0] + " " + a[1] + " " + a[2] + " " + e);
    }
}
```

```
static void test (int x, int y)
{
    a[1] = 6;
    e = 2;
    x += 3;
    y--;
    System.out.print(x + " " + y + " ");
}
}
```

**static:**

e	1	2
a[0]	0	
a[1]	1	6 5
a[2]	2	5

**Output:**

x	y	a[0]	a[1]	a[2]	e
5	5	0	5	5	2