Stack

Heap

200

int []

arr1

0 1 2 3 4

10 20 30 40 50

int

200 arr1[0] arr1[1] arr1[2] arr1[3] arr1[4]

new int[5]

200

int [] []

arr1

200

0

300

element :
int []

1

400

element :
int []

[2]

300 0 1 2

10 20 30

int int int

400 0 1 2

40 50 60

int int int

[3]

**new int [2][3]**

200

int [] []

arr1

200

0

300

element :
int []

1

400

element :
int []

[2]

300 0 1

10 20

400 0 1 2

30 40 50

**new int [2][];**
**arr1[0] = new int[2];**
**arr1[1] = new int[3];**

200

Point []

arr1

200

0

null
300
Point

1

null
400
Point

2

null
500
Point

3

null
600
Point

4

null
700
Point

**new Point [5]**

300

x_axis y_axis

1 2

**new Point(1,2);**

400

x_axis y_axis

3 4

**new Point(3,4);**

500

x_axis y_axis

5 6

**new Point(5,6);**

600

x_axis y_axis

7 8

**new Point(7,8);**

700

x_axis y_axis

9 10

**new Point(9,10);**

stack

arr1

**Point [ ][ ]**

200

**Point arr1[][] = new Point[2][3]**

200 0 1

**Point [ ]** **Point [ ]**

250 300

heap

250 0 1 2

Point Point Point

~~null~~ ~~null~~ ~~null~~

400 420 440

300 0 1 2

Point Point Point

~~null~~ ~~null~~ ~~null~~

500 520 540

400

x_axis 1

y_axis 2

**new Point(1,2)**

420

x_axis 3

y_axis 4

**new Point(3,4)**

440

x_axis 5

y_axis 6

**new Point(5,6)**

500

x_axis 7

y_axis 8

**new Point(7,8)**

520

x_axis 9

y_axis 10

**new Point(9,10)**

540

x_axis 11

y_axis 12

**new Point(11,12)**

Point arr1[][] = new Point[2][3]

arr1

Point [][]

stack

0 1

Point [ ] Point [ ]

0 1 2 0 1 2

~~null~~ ~~null~~ ~~null~~ ~~null~~ ~~null~~ ~~null~~

Point Point Point Point Point Point

x y x y x y x y x y x y

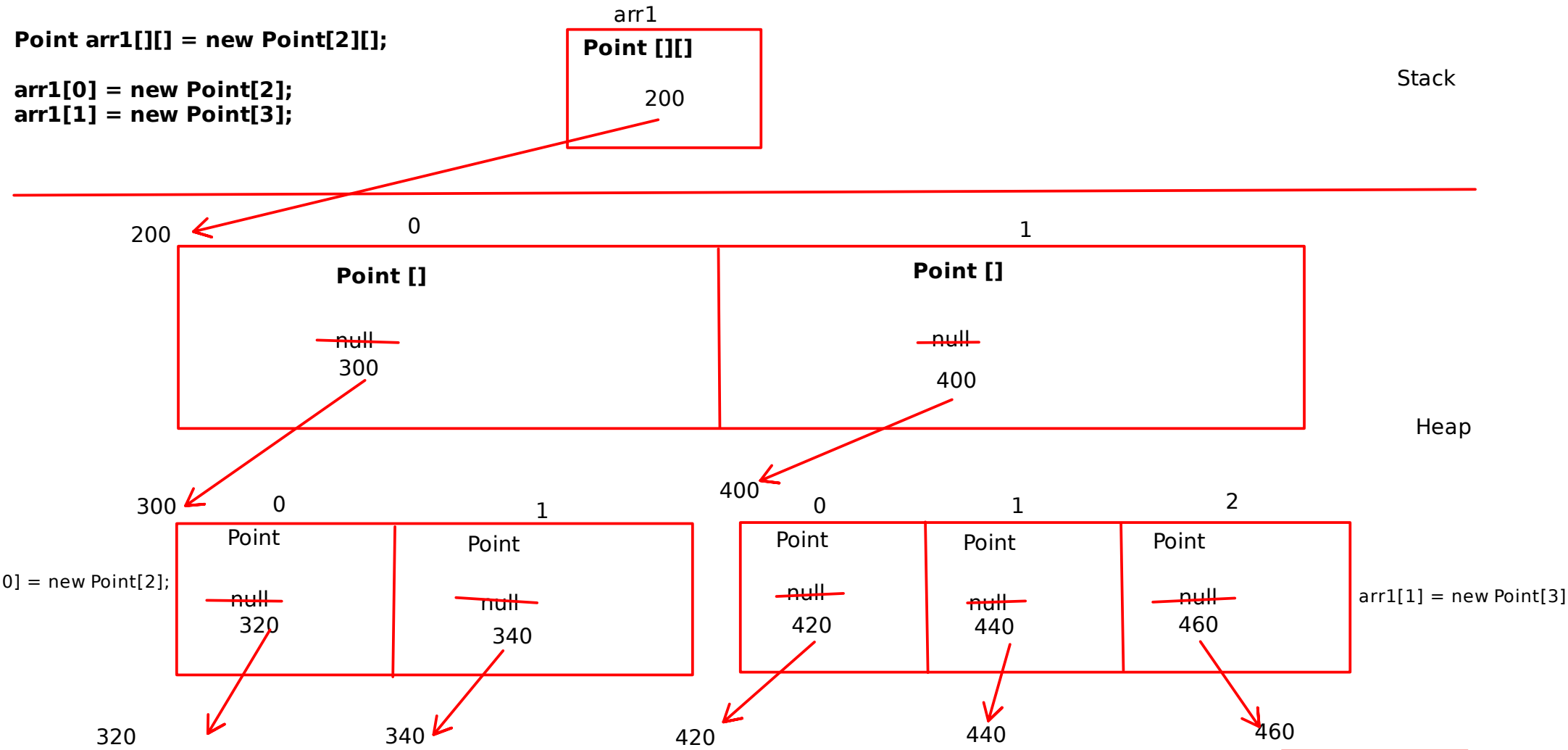
heap

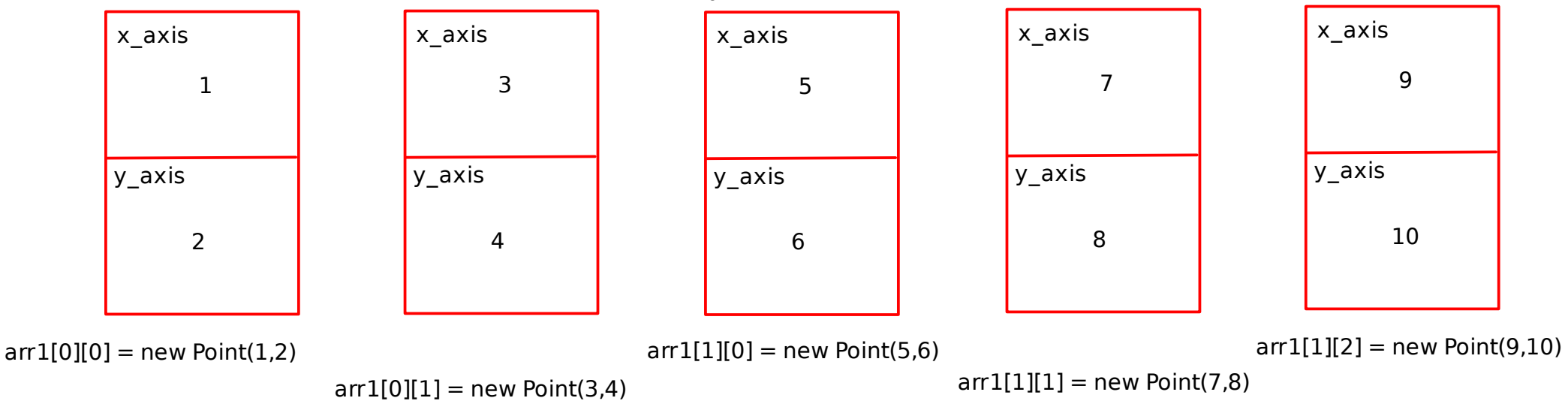
**new Point(x,y);**

```
Point arr1[][] = new Point[2][3];
arr1[0][0] = new Point(1,2);
arr1[0][1] = new Point(1,2);
arr1[0][2] = new Point(1,2);
arr1[1][0] = new Point(1,2);
arr1[1][1] = new Point(1,2);
arr1[1][2] = new Point(1,2);
```

**Point arr1[][] = new Point[2][];**

**arr1[0] = new Point[2];**
**arr1[1] = new Point[3];**

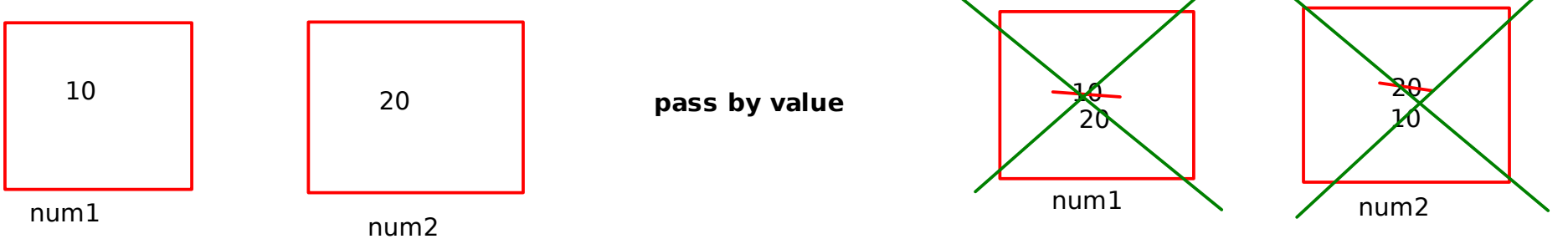


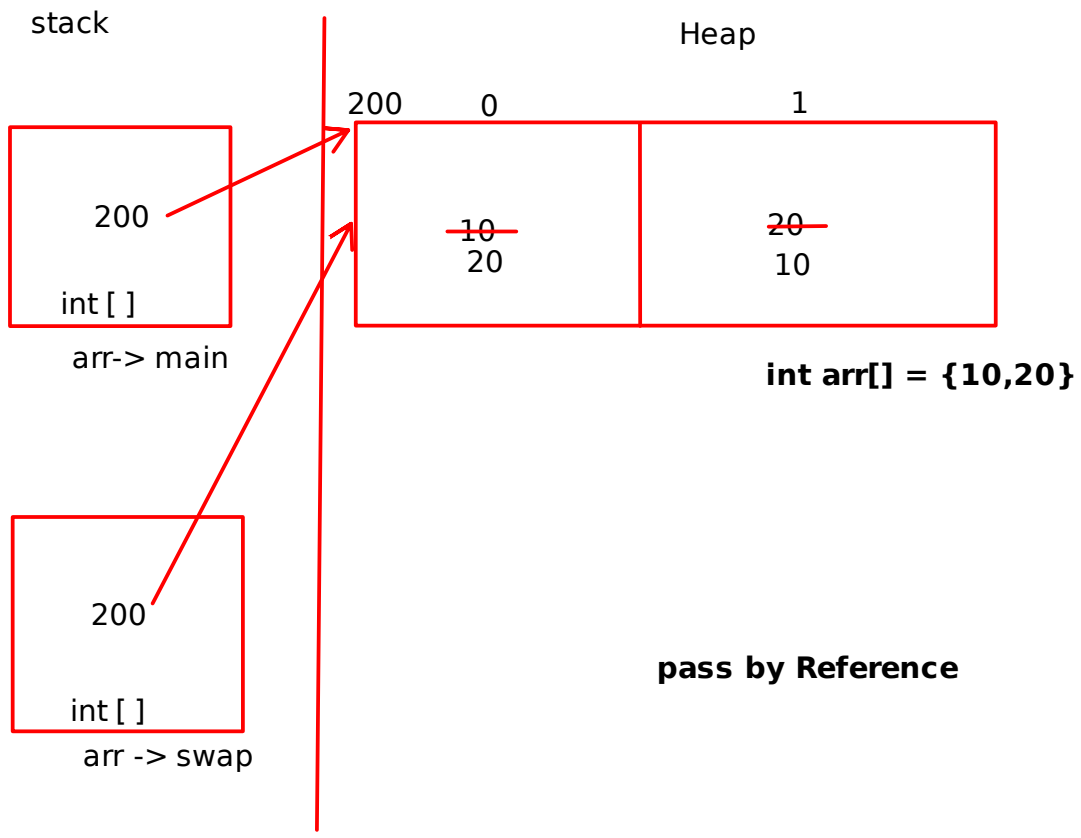




Stack

```
main(){
int num1 = 10;
int num2 = 20;
swap(num1,num2); // swap(10,20)
}
```

```
swap(int num1, int num2){
int temp = num1;
num1 = num2;
num2 = temp;
}
```




```
main(){
int []arr = {10,20};
swap(arr); // swap(200);
}
```

```
swap(int []arr) // copy of reference
{
int temp = arr[0];
arr[0] = arr[1];
arr[1] = temp;
}
```