1. Write exactly what is going to be printed in the program below. Draw the recursive calls to make sure that your answer is correct.

public class Recursion {  
 public static void function1(int n)  
 {  
 if (n > 0) {  
 *function1*(n - 1);  
 System.*out*.print(" "+ n);  
 }  
 }  
  
 public static void function2(int n)  
 {  
 if (n > 0)  
 {  
 System.*out*.print(n + " ");  
 *function2*(n - 1);  
 }  
 }  
 public static void function3(int n)  
 {  
 if (n > 0) {  
 System.*out*.print(" "+ n);  
 *function3*(n - 1);  
 *function3*(n - 1);  
 }  
 }  
 public static void funA(int n)  
 {  
 if (n > 0) {  
 System.*out*.print(" " +n);  
 *funB*(n - 1);  
 }  
 }  
 public static void funB(int n)  
 {  
 if (n > 1) {  
 System.*out*.print(" " +n);  
 *funA*(n / 2);  
 }  
 }  
 public static void main(String[] args)  
 {  
 int x = 3;  
 *function1*(x);  
 System.*out*.println();  
 *function2*(x);  
 System.*out*.println();  
 *function3*(x);  
 System.*out*.println();  
 *funA*(20);  
 }  
}

1. Write exactly what is going to be printed in the program below. Use paper and pencil to do a trace code, so you understand what is happening.

public class Sort {  
 public static void sort(int [] numbers) {  
 int i;  
 int j;  
 int temp;  
 for (i = 1; i < numbers.length; ++i) {  
 j = i;  
 while (j > 0 && numbers[j] > numbers[j - 1]) {  
 temp = numbers[j];  
 numbers[j] = numbers[j - 1];  
 numbers[j - 1] = temp;  
 --j;  
 }  
 }  
 }  
  
 public static void main(String [] args) {  
 int [] numbers = {7, 4, 1, 7, 11};  
 int i;  
 System.*out*.print("Original: ");  
 for (i = 0; i < numbers.length; ++i) {  
 System.*out*.print(numbers[i] + " ");  
 }  
 System.*out*.println();  
 *sort*(numbers);  
 System.*out*.print("New: ");  
 for (i = 0; i < numbers.length; ++i) {  
 System.*out*.print(numbers[i] + " ");  
 }  
 System.*out*.println();  
 }  
}

1. What the method something does? Write exactly what is going to be printed in the program below. Use paper and pencil to do a trace code, so you understand what is happening.

public class Q3 {

public static int something(int a[], int i, int j)  
{  
 if (i == j)  
 return i;  
 int k = *something*(a, i + 1, j);  
 return (a[i] < a[k])? i : k;  
}

public static void main(String [] args) {  
 int [] numbers = {7, 4, 1, 7, 11};  
 System.*out*.println(*something*(numbers, 0, 4));  
}

}