JAVA Class 1 (Codes)

Q1. Print numbers from 5 to 1.

```java
public static void printNumbers(int n) {
    if(n == 0) {
        return;
    }
    System.out.println(n);
    printNumbers(n-1);
}
```

Q2. Print numbers from 1 to 5.

```java
public static void printNumbers(int n) {
    if(n == 6) {
        return;
    }
    System.out.println(n);
    printNumbers(n+1);
}
```

Q3. Print the sum of first n natural numbers.

```java
class Recursion1 {
  public static void printSum(int n, int sum) {
      if(n == 0) {
          System.out.println(sum);
          return;
      }

      sum += n;
      printSum(n-1, sum);
  }
  public static void main(String args[]) {
      printSum(5, 0);
  }
}
```

Q4. Print factorial of a number n.

```
class Recursion1 {
   public static void printFactorial(int n, int fact) {
      if(n == 0) {
         System.out.println(fact);
         return;
      }

      fact *= n;
      printFactorial(n-1, fact);
   }
   public static void main(String args[]) {
      printFactorial(5, 1);
   }
}
```

Q5. Print the fibonacci sequence till nth term.

```
class Recursion1 {
   public static void printFactorial(int a, int b, int n) {
      if(n == 0) {
         return;
      }

      System.out.println(a);
      printFactorial(b, a+b, n-1);
   }
   public static void main(String args[]) {
      printFactorial(0, 1, 5);
   }
}
```

Q6. Print x^n (with stack height = n)

```
class Recursion1 {
   public static int printPower(int x, int n) {
      if(n == 0) {
         return 1;
      }

      if(x == 0) {
         return 0;
      }
```

```
        int x_ = printPower(x, n-1);
        int xn = x * x_;
        return xn;

    }
    public static void main(String args[]) {
        int x = 2, n = 5;
        int output = printPower(x, n);
        System.out.println(output);

    }
}
```

Q7. Print x^n (with stack height = logn)

```
class Recursion1 {
    public static int printPower(int x, int n) {
        if(n == 0) {
            return 1;
        }

        if(n % 2 == 0) {
            return printPower(x, n/2) * printPower(x, n/2);
        }

        else {
            return x * printPower(x, n/2) * printPower(x, n/2);
        }
    }

    public static void main(String args[]) {
        int x = 2, n = 5;
        int output = printPower(x, n);
        System.out.println(output);

    }
}
```