Solution 1 -

a. Amount is 32.320000, 3.2320000e+.01
b. C
c. False
d. Java
e. False Java

Solution 2 -

```
class pentagonal{
        public static int getPentagonalNumber(int n){
          int  answer = (n*(3*n -1))/2;
            return answer;
        }
        public static void main(String args[]){
                int var1,var2;
                java.util.Scanner input1= new java.util.Scanner(System.in);
                for (int i=0;i<10;i++){
                        var1=i*10+1;
                        var2=var1+9;
                                for(int z=var1;z<=var2;z++){
                                        int answer= getPentagonalNumber(z);
                                        System.out.print(answer);
                                }
                        System.out.println(" ");
                }
        }
}
```

```java
class pentagonal{
    public static int getPentagonalNumber(int n){
      int  answer = (n*(3*n -1))/2;
        return answer;
    }
    public static void main(String args[]){
        int var1,var2;
        java.util.Scanner input1= new java.util.Scanner(System.in);
        for (int i=0;i<10;i++){
            var1=i*10+1;
            var2=var1+9;
                for(int z=var1;z<=var2;z++){
                    int answer= getPentagonalNumber(z);
                    System.out.print(answer);
                }
            System.out.println(" ");
        }
    }
}
```

Solution 3 -
A : it will give an error as we cannot reinitialize the same variable again. If we don't reinitialise the var and just try to update the size to 20 then it will have a new size of 20.

B: It is incorrect because we are swapping the variables twice on each index. The correct solution would be to swap the first with last and keep increasing the first and decreasing the last pointer and stop when it reached middle.

C: 7777 , 24710

D:
D.a

```
Vaibhavs-MacBook-Pro:Snippets kayvee$ ls
Calculate.class         MyClass.class           myClass2.java           test.java
Markov.class            Output.class            pentagonal.class
Markov.java             myClass1.java           sample.java
```

D.b

```
Vaibhavs-MacBook-Pro:Snippets kayvee$ javac test.java
```

D.c

```
0Vaibhavs-MacBook-Pro:Snippets kayvee$ ls
   MyClass.class           myClass2.java           test.class
   Output.class            pentagonal.class        test.java
   myClass1.java           sample.java
```

D.d

```
Vaibhavs-MacBook-Pro:Snippets kayvee$ java test I have a dream
Number of Strings is 4I
have
a
dream
Vaibhavs-MacBook-Pro:Snippets kayvee$ java test "1 2 3"
Number of Strings is 11 2 3
Vaibhavs-MacBook-Pro:Snippets kayvee$ java test
Number of Strings is 0Vaibhavs-MacBook-Pro:Snippets kayvee$
```

Solution 4 -

```
class Calculate{
        public static int average(int [] array){
                int total=0;
                for (int i=0;i<array.length;i++){
```

```
                total=total+i;
            }
            int average = total/array.length-1;
            return average;
        }

        public static double average(double [] array){
            double total =0.00;
            for (int i=0;i<array.length;i++){
                total=total+i;
            }
            double  average = total/array.length-1;
            return average;
        }

        public static void main(String args[]){
            double[] array = new double[10];
            java.util.Scanner input1 = new java.util.Scanner(System.in);
            for (int i=1;i<10;i++){
                System.out.println("Please Enter a number");
                array[i]=input1.nextDouble();
            }
            double resultAverage= average(array);
            System.out.println(resultAverage);
        }
}
```

```java
class Calculate{
    public static int average(int [] array){
        int total=0;
        for (int i=0;i<array.length;i++){
            total=total+i;
        }
        int average = total/array.length-1;
        return average;
    }

    public static double average(double [] array){
        double total =0.00;
        for (int i=0;i<array.length;i++){
            total=total+i;
        }
        double  average = total/array.length-1;
        return average;
    }

    public static void main(String args[]){
        double[] array = new double[10];
        java.util.Scanner input1 = new java.util.Scanner(System.in);
        for (int i=1;i<10;i++){
            System.out.println("Please Enter a number");
            array[i]=input1.nextDouble();
        }
        double resultAverage= average(array);
        System.out.println(resultAverage);
    }
}

```

Solution 5 -
A: 12 (2+4+6)
B: 2 and 4
C: 4 and 8

Solution 6 -

```
public class Markov {
  public static void main(String[] args) {
         double[][] array = new double[3][3];

    boolean markovFlag = true;

    java.util.Scanner input = new java.util.Scanner(System.in);
         System.out.println("Enter a 3 by 3 matrix");
         for(int i=0;i<3;i++){
         for(int j=0;j<3;j++){
       double value = input.nextDouble();
         if (value < 0 ) {
        markovFlag = true;
```

```
        }
        array[i][j]= value;
           }
    }
    double var1 = 0;
    double var2 = 0;
    double var3 = 0;
    double total = 0 ;

    for (int i = 0 ; i < 3 ; i++ ) {
      total = 0;
      for (int z = 0 ; z < 3 ; z++ ) {

        total=total+array[i][z];
        if ( i == 0) {
          var1 = total;
        }
        if (i == 1) {
          var2 = total;
        }
        if (i == 2) {
          var3 = total;
        }
      }
    }
    double totalf = var1 +var2 +var3;
    System.out.println(var2);

    if (totalf == 3) {
       markovFlag = false;
    }

          if(markovFlag == true){
          System.out.println("Not a markov matrix");
    }
          else{
          System.out.println("markov matrix");
    }
  }
}
```

```java
public class Markov {
  public static void main(String[] args) {
    double[][] array = new double[3][3];

    boolean markovFlag = true;

    java.util.Scanner input = new java.util.Scanner(System.in);
    System.out.println("Enter a 3 by 3 matrix");
    for(int i=0;i<3;i++){
      for(int j=0;j<3;j++){
        double value = input.nextDouble();
        if (value < 0 ) {
          markovFlag = true;
        }
        array[i][j]= value;
      }
    }
    double var1 = 0;
    double var2 = 0;
    double var3 = 0;
    double total = 0 ;

    for (int i = 0 ; i < 3 ; i++ ) {
      total = 0;
      for (int z = 0 ; z < 3 ; z++ ) {

        total=total+array[i][z];
        if ( i == 0) {
          var1 = total;
        }
        if (i == 1) {
          var2 = total;
        }
        if (i == 2) {
          var3 = total;
        }
      }
    }
    double totalf = var1 +var2 +var3;
    System.out.println(var2);

    if (totalf == 3) {
       markovFlag = false;
    }

    if(markovFlag == true){
       System.out.println("Not a markov matrix");
    }
    else{
       System.out.println("markov matrix");
    }
  }
}
```

```
Not a markov matrix
Vaibhavs-MacBook-Pro:Snippets kayvee$ java Markov
Enter a 3 by 3 matrix
0.15
0.55
0.30
0.875
0.005
0.12
0.375
0.225
0.4
1.0
markov matrix
Vaibhavs-MacBook-Pro:Snippets kayvee$
```

```
markov matrix
Vaibhavs-MacBook-Pro:Snippets kayvee$ java Markov
Enter a 3 by 3 matrix
0.95
0.65
0.30
-0.875
0.005
0.22
0.375
0.225
-0.4
-0.65
Not a markov matrix
Vaibhavs-MacBook-Pro:Snippets kayvee$
```