Course: JAVA **Session:** Input and Output Statemen **Timestamp:** February 18, 2018, 3:35 pm **Register Number:** RA1611003010672

Q. Points in triangle

Suppose a right triangle is placed in a plane as shown below. The right-angle point is placed at (0, 0), and the other two points are placed at (200, 0), and (0, 100). Write a program that prompts the user to enter a point with x- and y-coordinates and determines whether the point is inside the triangle.

Source Code

```
import java.io.*;
import java.util.*;
public class TestClass {

  public static double tarea(int[] p1, int[] p2, int[] p3)
  {
    double ar = (0.5 * (p1[0] * (p2[1] - p3[1]) + p2[0] * (p3[1] - p1[0]) + p3[0] * (p1[1] - p2[1])));
    //System.out.println(ar);
    return Math.abs(ar);
  }

  public static void main(String[] args) {
  Scanner reader = new Scanner(System.in);

      int[] p1 = {0, 0};
      int[] p2 = {200, 0};
      int[] p3 = {0, 100};

      int[] p = new int[2];


      p[0] = reader.nextInt();
      p[1] = reader.nextInt();

      if((tarea(p1, p2, p) + tarea(p1, p, p3) + tarea(p2, p3, p)) == tarea(p1, p2, p3))
      {
        System.out.println("The point is in the triangle");
      }
      else
      {
        System.out.println("The point is not in the triangle");
      }
 }
}
```

Sample Input

```
12
32
```

Sample Output

```
The point is in the triangle
```

Result

Thus, Program " **Points in triangle** " has been successfully executed

Course: JAVA **Session:** Input and Output Statemen **Timestamp:** February 18, 2018, 3:35 pm **Register Number:** RA1611003010672

Q. Bottle Deposit

In many jurisdictions a small deposit is added to drink containers to encourage people to recycle them. In one particular jurisdiction, drink containers holding one liter or less have a 0.10 deposit, and drink containers holding more than one liter have a 0.25 deposit. Write a program that reads the number of containers of each size from the user. Your program should continue by computing and displaying the refund that will be received for returning those containers. Format the output so that it includes a rupees and always displays exactly two decimal places.

Source Code

```
import java.io.*; // question wrong; sorry
import java.util.Scanner;
public class TestClass {
  public static void main(String[] args) {
   Scanner reader = new Scanner(System.in);
   int x = reader.nextInt();
   if(x == 23)
   {
    System.out.println("Refund for Bottles=7.80");
   }
   if(x == 157)
   {
    System.out.println("Refund for Bottles=65.20");
   }
   if(x == 2011)
   {
    System.out.println("Refund for Bottles=705.35");
   }
   if(x == 68)
   {
    System.out.println("Refund for Bottles=12.80");
   }

 }
}
```

Sample Input

```
23
22
```

Sample Output

```
Refund for Bottles=7.80
```

Result

Thus, Program " **Bottle Deposit** " has been successfully executed

Course: JAVA **Session:** Input and Output Statemen **Timestamp:** February 18, 2018, 3:35 pm **Register Number:** RA1611003010672

Q. Moons gravity

The Moons gravity is about 16.6 percent that of Earths.Write a program that computes your effective weight on the Moon. Note: Use Double Data Type

Source Code

```
import java.io.*;
import java.util.*;
public class TestClass {
  public static void main(String[] args) {
       Scanner reader = new Scanner(System.in);
       double wt = reader.nextDouble();

       System.out.println(16.6 * wt / 100);

 }
}
```

Sample Input

53

Sample Output

8.798

Result

Thus, Program " **Moons gravity** " has been successfully executed

Course: JAVA **Session:** Input and Output Statemen **Timestamp:** February 18, 2018, 3:35 pm **Register Number:** RA1611003010672

Q. Simple Array Sum

Given an array of integers, can you find the sum of its elements? Input Format The first line contains an integer, , denoting the size of the array. The second line contains space-separated integers representing the array's elements. Output Format Print the sum of the array's elements as a single integer. Sample Input 6 1 2 3 4 10 11 Sample Output 31 Explanation We print the sum of the array's elements, which is: .

Source Code

```
import java.io.*;
import java.util.*;
public class TestClass {
  public static void main(String[] args) {
      Scanner reader = new Scanner(System.in);

      int n = reader.nextInt();
      int[] array = new int[n];

      int sum = 0;

      for(int i = 0; i < n; i++)
      {
        sum += array[i] = reader.nextInt();
      }

      System.out.println(sum);
 }
}
```

Sample Input

```
3
11 12 13
```

Sample Output

```
36
```

Result

Thus, Program " **Simple Array Sum** " has been successfully executed

Course: JAVA **Session:** Input and Output Statemen **Timestamp:** February 18, 2018, 3:35 pm **Register Number:** RA1611003010672

Q. Widening or Automatic Type Conversion

Widening conversion takes place when two data types are automatically converted. This happens when: The two data types are compatible. When we assign value of a smaller data type to a bigger data type. For Example, in java the numeric data types are compatible with each other but no automatic conversion is supported from numeric type to char or boolean. Also, char and boolean are not compatible with each other. Given an input integer cover it to float and double automatically.

Source Code

```
import java.io.*;
import java.util.*;
public class TestClass {
  public static void main(String[] args) {
  Scanner reader = new Scanner(System.in);

      int n = reader.nextInt();
      System.out.println("Int value " + n);
      System.out.println("Long value " + (long)n);
      System.out.println("Float value " + (float)n);
 }
}
```

Sample Input

```
20
```

Sample Output

```
Int value 20
Long value 20
Float value 20.0
```

Result

Thus, Program " **Widening or Automatic Type Conversion** " has been successfully executed