

Q1. Write a java program to find the addition, subtraction, multiplication and division of two complex numbers using inheritance. Create a abstract class Complex. From this extends a child class Addition, Subtraction, Multiplication and Division. All of these child classes should contain same methods.

Input Format

Input consists of four double type variables.

Which denotes the real and imaginary parts of the first complex number,

Followed by the real and imaginary parts of the second complex number.

Output Format

Output consists of the Addition, Subtraction, Multiplication and Division of the two input complex numbers.

Q2. write a program to count a minimum number of front moves to sort an array.

Note: Create an interface and declare a method, the class should implement the interface.

Input Format

Input to get the size of array N in the first line, followed by N elements separated by single space in the second line.

Note: The elements must be the first N natural numbers jumbled.

Output Format

Display the output as shown in the sample output.

Q3. Create an abstract class Shape with the following methods

abstract void rectangleArea();

abstract void squareArea();

abstract void circleArea();

Create a class Area that extends Shape that calculates and prints all the area.

Create a Main class, get the inputs and pass it to the methods.

Input Format

The first line of the input consists of the length and breadth.

The second line consists of the side.

The third line consists of the radius.

Output Format

The output prints the area of rectangle, square, and circle.

Refer sample input and output for formatting specifications.

Round off the area of the circle to two decimal places

Q4. create an abstract class marks with the following method

```
void getPercentage();
```

Create a class A that extends marks and has 3 attributes marks1, marks2, and marks3 and a method getPercentage that calculates and prints the percentage of the student.

Create a class B that extends marks and has 4 attributes marks1, marks2, marks3, and marks4 and a method getPercentage that

calculates and prints the percentage of the student.

Round off the output to two decimal places.

Input Format

The first line of the input consists of three integers i.e., the marks scored by student A.

The second line of the input consists of four integers i.e., the marks scored by student B.

Output Format

The first line prints the percentage of A.

The second line prints the percentage of B.

Q5. Write a program to find the sum of divisors using the concept of abstract classes.

Create an abstract class "AbstractClass" which contains abstract methods getValue() and divisorSum(int n). Then write a class

called Calculator which extends the abstract class.

getValue(): Method need's to get input from the user.

divisorSum(int n): Method get's "n" as parameter and returns the sum of the numbers divisor.

Eg: Divisor of number 4 is 1, 2, 4. Output is $1+2+4 = 7$

Input Format

The input consists of a number.

Output Format

The output prints the sum of its proper divisors.