

Level 2

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Class : 1003

1. Write a program to create a basic calculator that can perform addition, subtraction, multiplication, and division. The program should ask for two numbers (floating point) and perform all the operations

**Hint =>**

- a. Create a variable number1 and number 2 and take user inputs.
- b. Perform Arithmetic Operations of addition, subtraction, multiplication and division and assign the result to a variable and finally print the result

**I/P =>** number1, number2

**O/P =>** The addition, subtraction, multiplication and division value of 2 numbers \_\_\_\_ and \_\_\_\_

**Code:**

```
import java.util.Scanner;

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

        System.out.print("Enter first number: ");
        double number1 = scanner.nextDouble();
        System.out.print("Enter second number: ");
        double number2 = scanner.nextDouble();

        double addition = number1 + number2;
        double subtraction = number1 - number2;
        double multiplication = number1 * number2;
        double division = number1 / number2;

        System.out.println("The addition, subtraction, multiplication, and division of " + number1 + " and " + number2 + " is "
            + addition + ", " + subtraction + ", " + multiplication + ", and " + division);

        scanner.close();
    }
}
```

**Output:**

```
P5 C:\Users\rishi\desktop> javac BasicCalculator.java
P5 C:\Users\rishi\desktop> java BasicCalculator
Enter first number: 32
Enter second number: 34
The addition, subtraction, multiplication, and division of 32.0 and 34.0 is 66.0, -2.0, 1088.0, and 0.9411764705882353
```

2. Write a program that takes the base and height to find area of a triangle in square inches and square centimeters

**Hint =>** Area of a Triangle is  $\frac{1}{2} \times \text{base} \times \text{height}$

**I/P =>** base, height

**O/P =>** Your Height in cm is \_\_\_\_ while in feet is \_\_\_\_ and inches is \_\_\_\_

**Code :**

```

import java.util.Scanner;

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

        System.out.print("Enter base of the triangle (in inches): ");
        double base = scanner.nextDouble();
        System.out.print("Enter height of the triangle (in inches): ");
        double height = scanner.nextDouble();

        double areaInInches = 0.5 * base * height;
        double areaInCm = areaInInches * 6.4516; // 1 square inch = 6.4516 square cm

        System.out.println("The area of the triangle is " + areaInInches + " square inches and " + areaInCm + " square cm.");

        scanner.close();
    }
}

```

Output :

```

PS C:\Users\rishi\desktop> javac TriangleArea.java
PS C:\Users\rishi\desktop> java TriangleArea
Enter base of the triangle (in inches): 30
Enter height of the triangle (in inches): 23
The area of the triangle is 345.0 square inches and 2225.802 square cm.

```

3. Write a program to find the side of the square whose parameter you read from user

**Hint =>** Perimeter of Square is 4 times side

**I/P =>** perimeter

**O/P =>** The length of the side is \_\_\_\_ whose perimeter is \_\_\_\_

Code :

```

import java.util.Scanner;

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

        System.out.print("Enter perimeter of the square: ");
        double perimeter = scanner.nextDouble();

        double side = perimeter / 4;

        System.out.println("The length of the side is " + side + " whose perimeter is " + perimeter);

        scanner.close();
    }
}

```

Output:

```

PS C:\Users\rishi\desktop> java SquareSide
Enter perimeter of the square: 6
The length of the side is 1.5 whose perimeter is 6.0

```

4. Write a program to find the distance in yards and miles for the distance provided by user in feet

**Hint =>** 1 mile = 1760 yards and 1 yard is 3 feet

**I/P =>** distanceInFeet

**O/P =>** Your Height in cm is \_\_\_\_ while in feet is \_\_\_\_ and inches is \_\_\_\_

**Code :**

```
import java.util.Scanner;

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

        System.out.print("Enter distance in feet: ");
        double distanceInFeet = scanner.nextDouble();

        double distanceInYards = distanceInFeet / 3;
        double distanceInMiles = distanceInFeet / 5280; // 1 mile = 5280 feet

        System.out.println("The distance is " + distanceInYards + " yards and " + distanceInMiles + " miles.");

        scanner.close();
    }
}
```

**Output :**

```
Enter distance in feet: 50
The distance is 16.666666666666668 yards and 0.00946969696969697 miles.
```

5. Write a program to input the unit price of an item and the quantity to be bought. Then, calculate the total price.

**Hint =>** NA

**I/P =>** unitPrice, quantity

**O/P =>** The total purchase price is INR \_\_\_\_ if the quantity \_\_\_\_ and unit price is INR \_\_\_\_

**Code :**

```
import java.util.Scanner;

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

        System.out.print("Enter unit price of item: ");
        double unitPrice = scanner.nextDouble();
        System.out.print("Enter quantity: ");
        int quantity = scanner.nextInt();

        double totalPrice = unitPrice * quantity;

        System.out.println("The total purchase price is INR " + totalPrice + " if the quantity " + quantity + " and unit price is INR " + unitPrice);

        scanner.close();
    }
}
```

**Output :**

```
Enter unit price of item: 70
Enter quantity: 4
The total purchase price is INR 280.0 if the quantity 4 and unit price is INR 70.0
```

6. Write a program to take 2 numbers and print their quotient and remainder

**Hint =>** Use division operator (/) for quotient and moduli operator (%) for remainder

**I/P =>** number1, number2

**O/P =>** The Quotient is \_\_\_\_ and Remainder is \_\_\_\_ of two number \_\_\_\_ and \_\_\_\_

Code :

```
import java.util.Scanner;

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

        System.out.print("Enter first number: ");
        int number1 = scanner.nextInt();
        System.out.print("Enter second number: ");
        int number2 = scanner.nextInt();

        int quotient = number1 / number2;
        int remainder = number1 % number2;

        System.out.println("The Quotient is " + quotient + " and Remainder is " + remainder + " of two numbers " + number1 + " and " + number2);

        scanner.close();
    }
}
```

Output :

```
Enter first number: 89
Enter second number: 90
The Quotient is 0 and Remainder is 89 of two numbers 89 and 90
```

7. Write an **IntOperation** program by taking a, b, and c as input values and print the following integer operations  $a + b * c$ ,  $a * b + c$ ,  $c + a / b$ , and  $a \% b + c$ . Please also understand the precedence of the operators.

**Hint =>**

- Create variables a, b, c of int data type.
- Take user input for a, b, and c.
- Compute 3 integer operations and assign the result to a variable
- Finally, print the result and try to understand operator precedence.

**I/P =>** fee, discountPercent

**O/P =>** The results of Int Operations are —, —, and —

Code :

```
import java.util.Scanner;

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

        System.out.print("Enter integer a: ");
        int a = scanner.nextInt();
        System.out.print("Enter integer b: ");
        int b = scanner.nextInt();
        System.out.print("Enter integer c: ");
        int c = scanner.nextInt();

        int result1 = a + b * c;
        int result2 = a * b + c;
        int result3 = c + a / b;
        int result4 = a % b + c;

        System.out.println("The results of Int Operations are " + result1 + ", " + result2 + ", " + result3 + ", and " + result4);

        scanner.close();
    }
}
```

Output :

```
PS C:\Users\rishi\Desktop> java IntOperations
Enter integer a: 8
Enter integer b: 9
Enter integer c: 2
The results of Int Operations are 26, 74, 2, and 10
PS C:\Users\rishi\Desktop>
```

8. Similarly, write the **DoubleOpt** program by taking double values and doing the same operations.

Code :

```
import java.util.Scanner;

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

        System.out.print("Enter double a: ");
        double a = scanner.nextDouble();
        System.out.print("Enter double b: ");
        double b = scanner.nextDouble();
        System.out.print("Enter double c: ");
        double c = scanner.nextDouble();

        double result1 = a + b * c;
        double result2 = a * b + c;
        double result3 = c + a / b;
        double result4 = a % b + c;

        System.out.println("The results of Double Operations are " + result1 + ", " + result2 + ", " + result3 + ", and " + result4);

        scanner.close();
    }
}
```

Output :

```
PS C:\Users\prashant\source\repos\java\DoubleOperations>
Enter double a: 30
Enter double b: 40
Enter double c: 70
The results of Double Operations are 2830.0, 1270.0, 70.75, and 100.0
PS C:\Users\prashant\source\repos\java\DoubleOperations>
```