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SECTION 4 1

```
package hello;

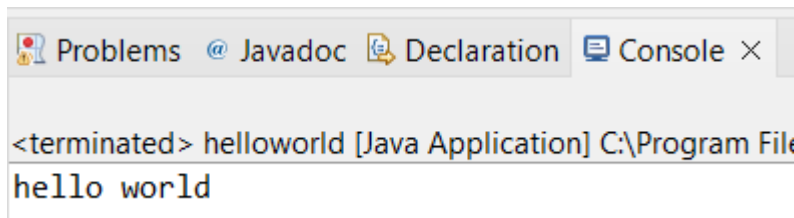
public class helloworld {

    public static void main(String[] args) {

        System.out.println("hello world");

    }

}
```



SECTION 4 2

```
package student;

import java.util.*;

public class Student {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter student's name: ");

        String name = scanner.nextLine();

        System.out.print("Enter student's roll number: ");

        int rollNumber = scanner.nextInt();

        System.out.print("Enter student's age: ");
```

```

int age = scanner.nextInt();

System.out.print("Enter student's grade: ");

String grade = scanner.next();

System.out.println("\nStudent Details:");

System.out.println("Name: " + name);

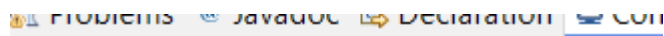
System.out.println("Roll Number: " + rollNumber);

System.out.println("Age: " + age);

System.out.println("Grade: " + grade);

scanner.close();
}
}

```



```

<terminated> Student [Java Application] C:\Progr
Student Details:
Name: RAHUL
Roll Number: 192324137
Age: 19
Grade: S

```

SECTION 4 3

```
package triangle;
```

```
import java.util.Scanner;
```

```
public class Triangle {
```

```
    public static void main(String[] args) {
```

```
        Scanner scanner = new Scanner(System.in);
```

```
        System.out.print("Enter the base of the triangle: ");
```

```
        double base = scanner.nextDouble();
```

```

    System.out.print("Enter the height of the triangle: ");

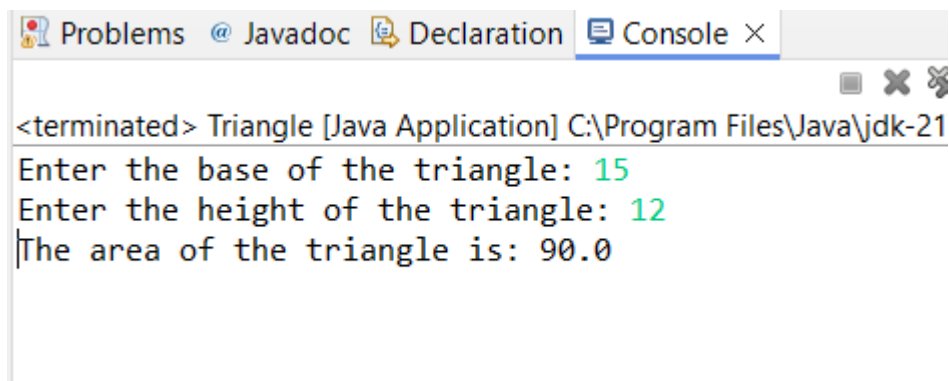
    double height = scanner.nextDouble();

    double area = calculateArea(base, height);

    System.out.println("The area of the triangle is: " + area);
}

public static double calculateArea(double base, double height) {
    return 0.5 * base * height;
}
}

```



The screenshot shows a Java IDE window with a tab labeled 'Console'. The console output is as follows:

```

<terminated> Triangle [Java Application] C:\Program Files\Java\jdk-21
Enter the base of the triangle: 15
Enter the height of the triangle: 12
The area of the triangle is: 90.0

```

```

package formulas;

import java.lang.Math;

public class Fromulas {

    public static void main(String[] args) {

        double x = 10.0; // assume x is initialized

        double y = 5.0; // assume y is initialized

        double z = 3.0; // assume z is initialized

        double a = formulaA(x);

        double b = formulaB(x, y);
    }
}

```

```
double c = formulaC(z, x);
```

```
double d = formulaD(x, y);
```

```
double e = formulaE(x, y);
```

```
double f = formulaF(x);
```

```
System.out.println("a = " + a);
```

```
System.out.println("b = " + b);
```

```
System.out.println("c = " + c);
```

```
System.out.println("d = " + d);
```

```
System.out.println("e = " + e);
```

```
System.out.println("f = " + f);
```

```
}
```

```
public static double formulaA(double x) {
```

```
    return Math.sqrt(Math.pow(x, 5) - 6 / 4);
```

```
}
```

```
public static double formulaB(double x, double y) {
```

```
    return x * y - 6 * x;
```

```
}
```

```
public static double formulaC(double z, double x) {
```

```
    return 4 * Math.cos(Math.PI / 5) - Math.sin(Math.PI * Math.pow(x, 2));
```

```
}
```

```
public static double formulaD(double x, double y) {
```

```
    return Math.pow(x, 4) - Math.sqrt(6 * x - Math.pow(y, 3));
```

```
}
```

```
public static double formulaE(double x, double y) {
```

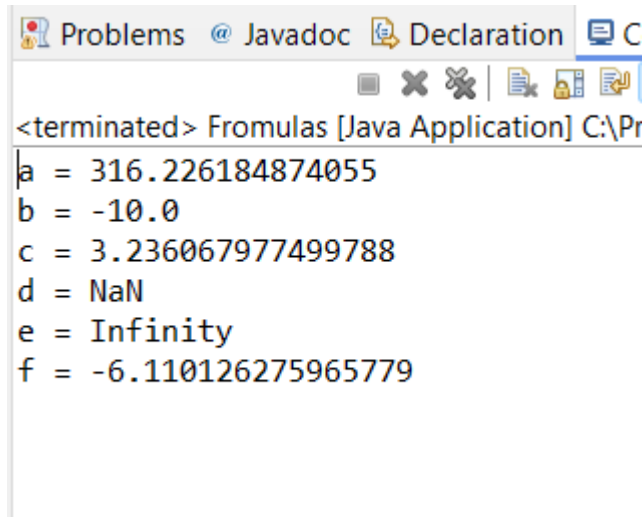
```
    return 1 / (y - 1) / (x - 2 * y);
```

```

    }

    public static double formulaF(double x) {
        return 7 * Math.cos(Math.PI * (Math.sqrt(5) - Math.sin(Math.sqrt(3 * x - 4))));
    }
}

```



```

<terminated> Formulas [Java Application] C:\Pr
a = 316.226184874055
b = -10.0
c = 3.236067977499788
d = NaN
e = Infinity
f = -6.110126275965779

```

```

package booleans;

import java.util.Scanner;

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

        System.out.print("Enter a value for i: ");
        int i = scanner.nextInt();

        System.out.print("Enter a value for j: ");
        int j = scanner.nextInt();

        boolean true_false;

        true_false = (j < 5);
    }
}

```

```
System.out.println("j < 5) = " + true_false);
```

```
true_false = (j > 3);
```

```
System.out.println("j > 3) = " + true_false);
```

```
true_false = (j < i);
```

```
System.out.println("j < i) = " + true_false);
```

```
true_false = (i < 5);
```

```
System.out.println("i < 5) = " + true_false);
```

```
true_false = (j <= 5);
```

```
System.out.println("j <= 5) = " + true_false);
```

```
true_false = (6 < 6);
```

```
System.out.println("6 < 6) = " + true_false);
```

```
true_false = (i != j);
```

```
System.out.println("i != j) = " + true_false);
```

```
true_false = (i == j || i < 50);
```

```
System.out.println("i == j || i < 50) = " + true_false);
```

```
true_false = (i == j && i < 50);
```

```
System.out.println("i == j && i < 50) = " + true_false);
```

```
true_false = (i > j || true_false && j >= 4);
```

```
System.out.println("i > j || true_false && j >= 4) = " + true_false);
```

```
true_false = (!(i < 2 && j == 5));
```

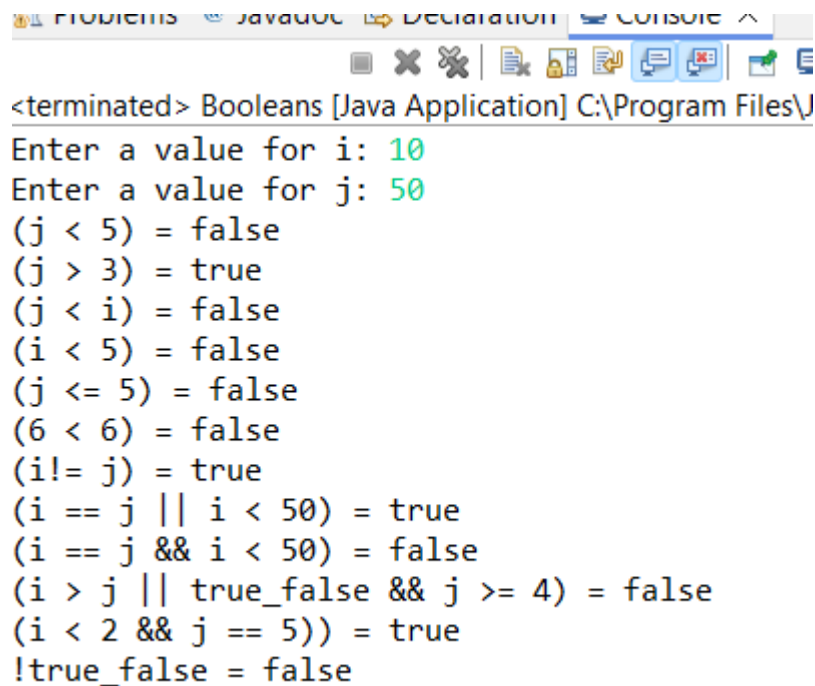
```
System.out.println("i < 2 && j == 5) = " + true_false);
```

```

        true_false = !true_false;

        System.out.println("!true_false = " + true_false);
    }
}

```



```

<terminated> Booleans [Java Application] C:\Program Files\J
Enter a value for i: 10
Enter a value for j: 50
(j < 5) = false
(j > 3) = true
(j < i) = false
(i < 5) = false
(j <= 5) = false
(6 < 6) = false
(i != j) = true
(i == j || i < 50) = true
(i == j && i < 50) = false
(i > j || true_false && j >= 4) = false
(i < 2 && j == 5)) = true
!true_false = false

```

SECTION 4 4

```
package mystring;
```

```

public class Mystring {

    public static void main(String[] args) {

        String myString1 = "abc";

        System.out.println("Method 1: " + myString1);


        String myString2 = new String("abc");

        System.out.println("Method 2: " + myString2);

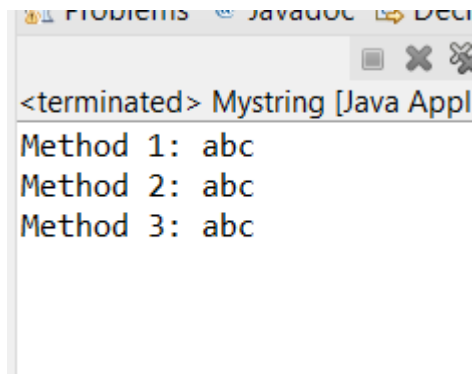

        String myString3 = String.valueOf("abc");
    }
}

```

```

        System.out.println("Method 3: " + myString3);
    }
}

```



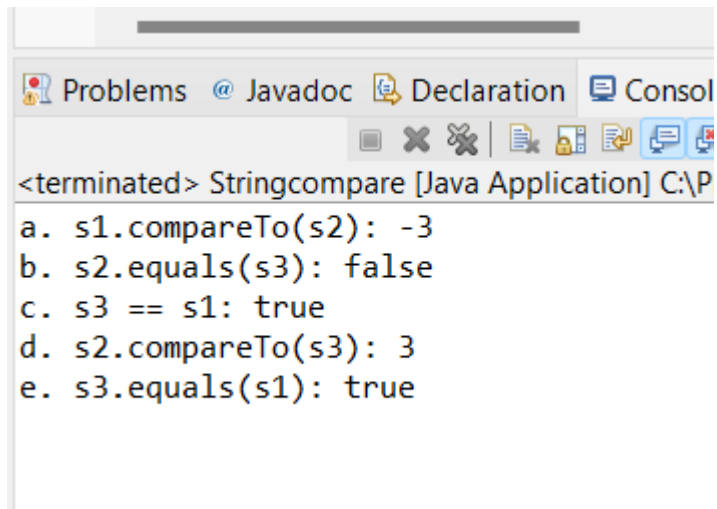
```
package stringcompare;
```

```

public class Stringcompare {
    public static void main(String[] args) {
        String s1 = "ABC";
        String s2 = new String("DEF");
        String s3 = "AB" + "C";

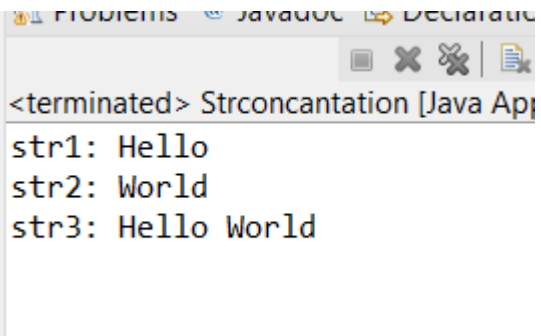
        System.out.println("a. s1.compareTo(s2): " + s1.compareTo(s2));
        System.out.println("b. s2.equals(s3): " + s2.equals(s3));
        System.out.println("c. s3 == s1: " + (s3 == s1));
        System.out.println("d. s2.compareTo(s3): " + s2.compareTo(s3));
        System.out.println("e. s3.equals(s1): " + s3.equals(s1));
    }
}

```

```
package concatenation;
```

```
public class Strconcatation {  
    public static void main(String[] args) {  
        // Declare and instantiate two separate String objects  
        String str1 = "Hello";  
        String str2 = "World";  
  
        // Concatenate them together and assign to a third String object  
        String str3 = str1 + " " + str2;  
  
        // Print the result  
        System.out.println("str1: " + str1);  
        System.out.println("str2: " + str2);  
        System.out.println("str3: " + str3);  
    }  
}
```



The screenshot shows a portion of an IDE's interface. At the top, there are tabs labeled "Problems", "JavaDoc", and "Declarati". Below these tabs is a toolbar with icons for a console window, a close button, a refresh button, and a print button. The main area of the console window displays the output of a Java application. The first line is "<terminated> Strconcatation [Java App". The subsequent lines are "str1: Hello", "str2: World", and "str3: Hello World".

```
<terminated> Strconcatation [Java App
str1: Hello
str2: World
str3: Hello World
```