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1st week Assignment

Date 10/avg/2025

PG-DAC

1. Calculate the area of a rectangle given its length and width.

```
import java.util.*;

public class program1 {

    public static void main(String[] args) {

        int length = Integer.parseInt(args[0]);

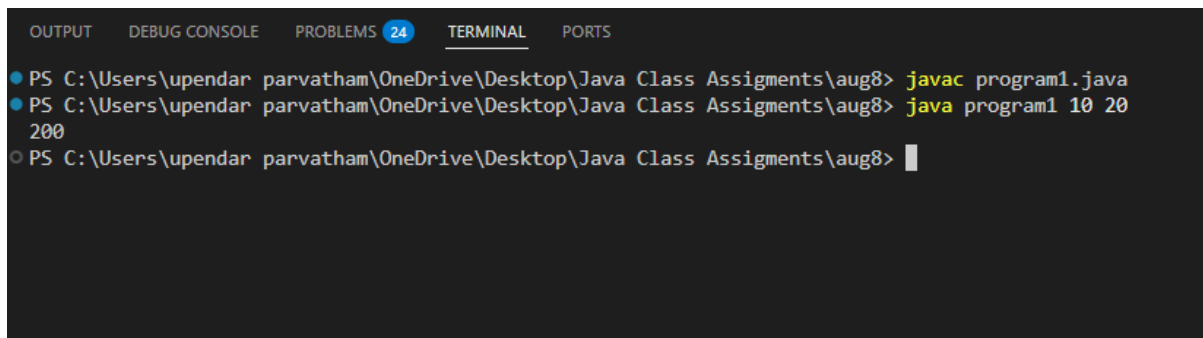
        int breadth = Integer.parseInt(args[1]);

        System.out.println(length*breadth);

    }

}
```

Output:



```
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program1.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program1 10 20
200
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```

2. Convert a temperature from Celsius to Fahrenheit using the formula: $F = (C * 9/5) + 32$

```
import java.util.*;

public class program2 {

    public static void main(String[] args) {

        Double celsius = Double.parseDouble(args[0]);

        Double Fahrenheit = (celsius * (9/5))+ 32;

        System.out.println(Fahrenheit);

    }

}
```

Output:

OUTPUT DEBUG CONSOLE PROBLEMS 24 TERMINAL PORTS

```
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program2.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program2 76
108.0
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```

3. Calculate the area of a circle given its radius using the formula: $A = \pi * r^2$.

```
import java.util.*;

public class program3 {

    public static void main(String[] args) {

        Double radius = Double.parseDouble(args[0]);

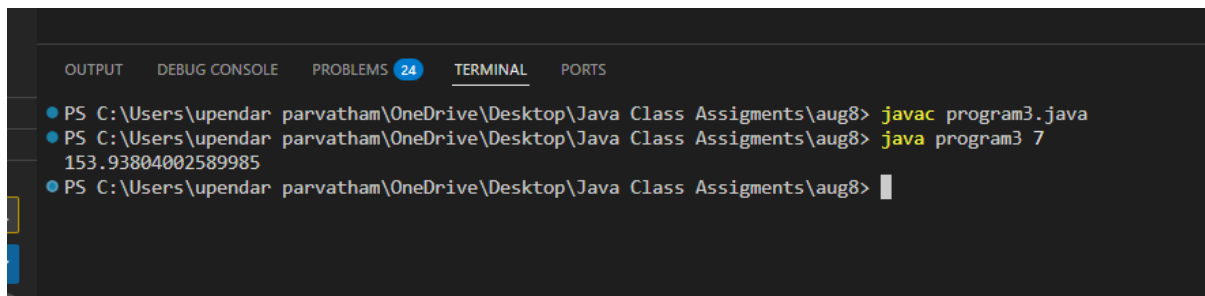
        Double area = Math.PI * (radius*radius);

        System.out.println(area);

    }

}
```

Output:



```
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS

PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program3.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program3 7
153.93804002589985
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```

4. Compute the hypotenuse of a right triangle using the Pythagorean theorem: $c = \sqrt{a^2 + b^2}$.

```
import java.util.*;

public class program4 {

    public static void main(String[] args) {

        Double a = Double.parseDouble(args[0]);

        Double b = Double.parseDouble(args[1]);

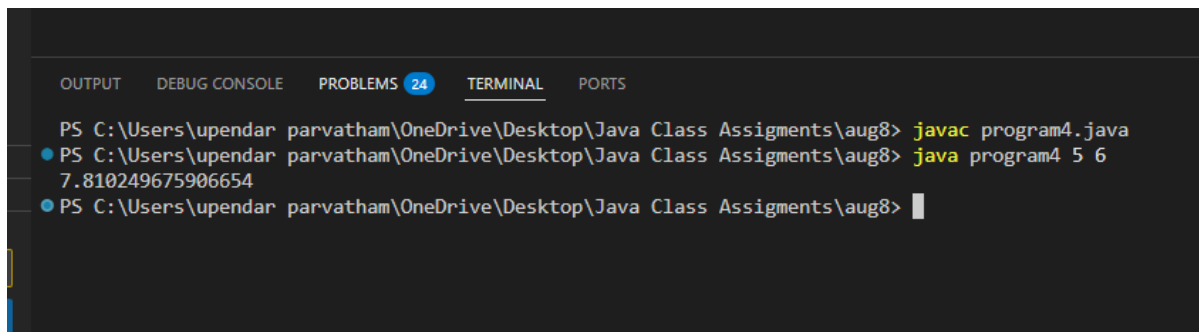
        Double c = Math.sqrt((a*a )+ (b*b));

        System.out.println(c);

    }

}
```

Output:



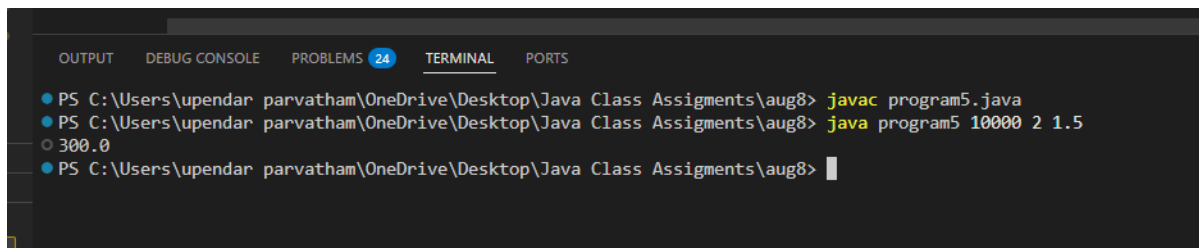
```
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program4.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program4 5 6
7.810249675906654
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```

5. Calculate the simple interest on an investment using the formula: $A = P * T * R / 100$;

```
import java.util.*;
```

```
public class program5 {
    public static void main(String[] args) {
        Double p = Double.parseDouble(args[0]);
        Double t = Double.parseDouble(args[1]);
        Double r = Double.parseDouble(args[2]);
        Double a = (p*r*t)/100; System.out.println(a);
    }
}
```

Output:



```
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program5.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program5 10000 2 1.5
300.0
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```

6. Calculate the compound interest on an investment

// using the formula: $A = P * (1 + r/n)^{(n*t)}$.

```
import java.util.*;
```

```
public class program6 {
    public static void main(String[] args) {
        Double p = Double.parseDouble(args[0]);
```

```

Double r = Double.parseDouble(args[1]) / 100;

Double t = Double.parseDouble(args[2]);

Double n = Double.parseDouble(args[3]);


double A = p * Math.pow((1 + r / n), (n * t));

Double CI = A - p;

System.out.println("CI IS " + CI);

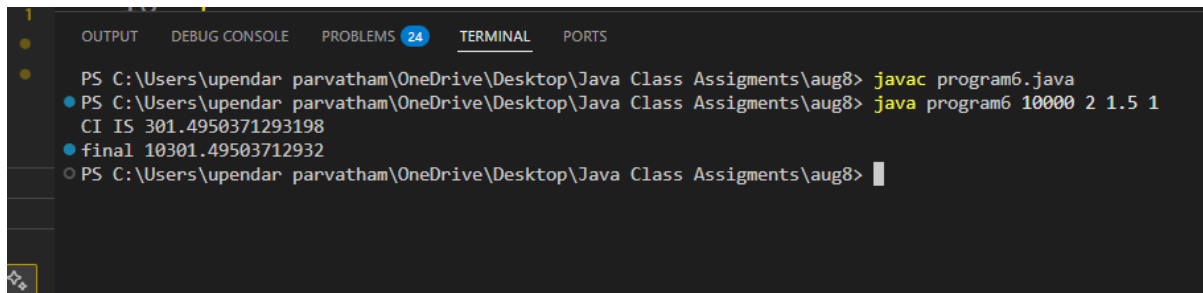
System.out.println("final " + A);

}

}

```

Output:



```

PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program6.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program6 10000 2 1.5 1
CI IS 301.4950371293198
final 10301.49503712932
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8>

```

7. Determine the volume of a sphere given its radius

//using the formula: $V = (4/3) * \pi * r^3$.

```

import java.util.*;

public class program7 {

    public static void main(String[] args) {

        Double r = Double.parseDouble(args[0]);

        Double v = (4.0/3.0) * Math.PI * (r*r*r);

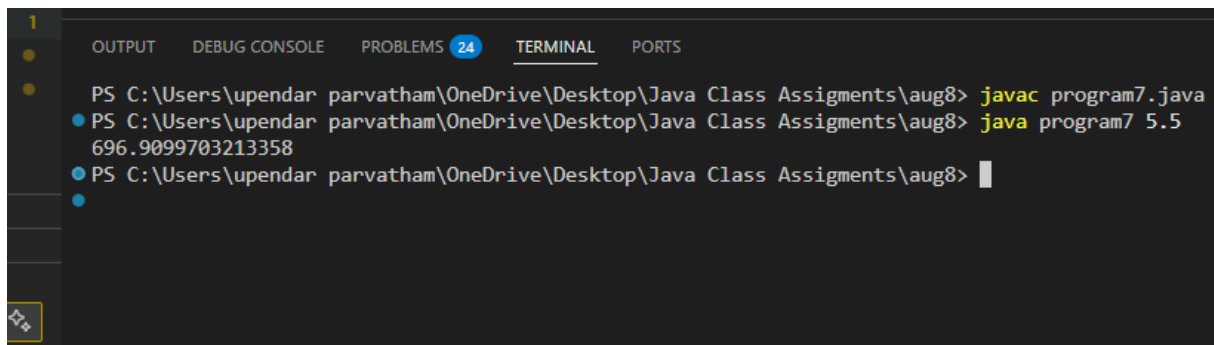
        System.out.println(v);

    }

}

```

Output:



```
1
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program7.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program7 5.5
696.9099703213358
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```

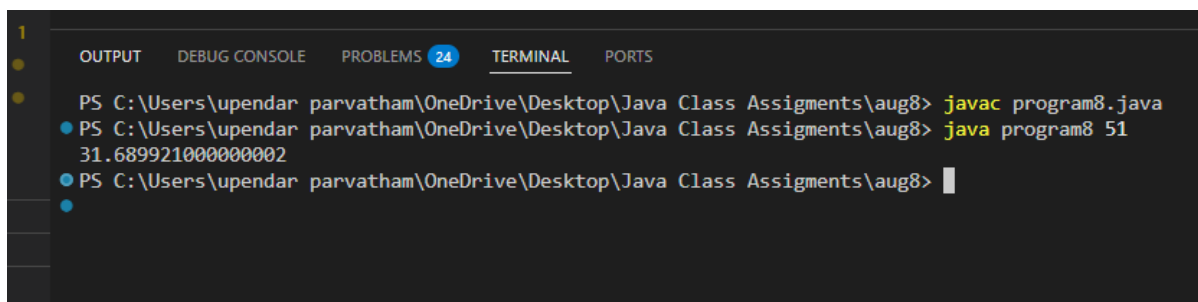
8. Convert a distance from kilometers to miles

// using the formula: miles = kilometers * 0.621371.

```
import java.util.*;

public class program8 {
    public static void main(String[] args) {
        Double km = Double.parseDouble(args[0]);
        Double miles = km * 0.621371;
        System.out.println(miles);
    }
}
```

Output



```
1
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program8.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program8 51
31.689921000000002
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```

9. //Calculate the sum of the first n natural numbers

//using the formula: sum = (n * (n + 1)) / 2.

```
import java.util.*;

public class program9 {
    public static void main(String[] args) {
```

```

        int n = Integer.parseInt(args[0]);

        int sum = (n * (n+1))/2;

        System.out.println(sum);
    }
}

```

Output:

```

1
1
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\aug8> javac program9.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\aug8> java program9 20
210
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\aug8>

```

10. Compute the area of a triangle given the lengths of its three sides

// using Heron's formula.

//The formula is as follows:

// $s = (a + b + c) / 2$

// $A = \sqrt{s * (s - a) * (s - b) * (s - c)}$

//where:

//a, b, and c are the lengths of the triangle's sides.

//s is the semi perimeter (half of the perimeter) of the triangle.

//A is the area of triangle

import java.util.*;

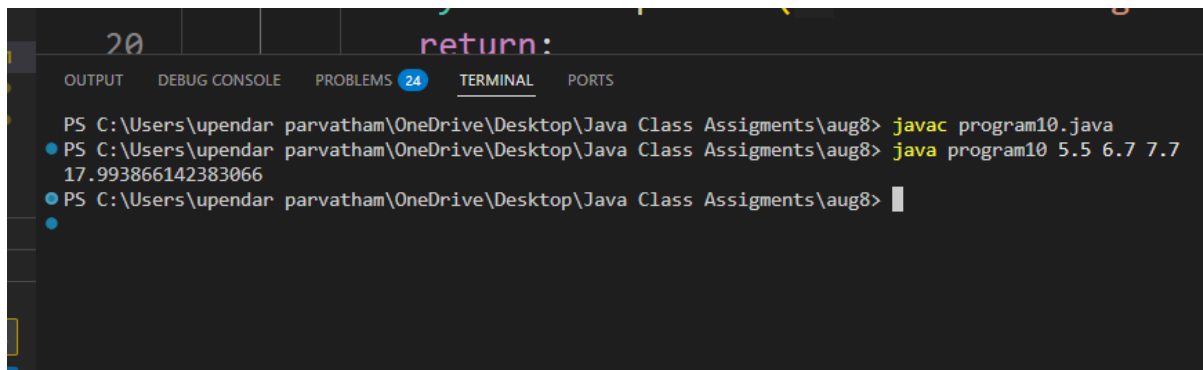
```

public class program10 {
    public static void main(String[] args) {
        Double a = Double.parseDouble(args[0]);
        Double b = Double.parseDouble(args[1]);
        Double c = Double.parseDouble(args[2]);
        if (a + b <= c || a + c <= b || b + c <= a) {
            System.out.println("Invalid triangle sides.");
        }
    }
}

```

```
        return;  
    }  
  
    Double s = (a + b + c) / 2;  
    Double A = Math.sqrt(s * (s - a) * (s - b) * (s - c));  
    System.out.println(A);  
}  
}
```

Output:



```
20  
return:  
OUTPUT  DEBUG CONSOLE  PROBLEMS 24  TERMINAL  PORTS  
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> javac program10.java  
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> java program10 5.5 6.7 7.7  
17.993866142383066  
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assignments\aug8> 
```