**INTRODUCTION TO JAVA BASICS -ASSIGNMENT 2**

**1. Write a program to find the difference between sum of the squares and the square of the sums of n numbers?**

**Output:**

Enter the value of n: 4

The 4 numbers are :

2

3

4

5

Sum of Squares of given 4 numbers is : 54

Squares of Sum of given 4 numbers is : 196

Difference between sum of the squares and the square of the sum of given 4

numbers is : 142

**2. Develop a program that accepts the area of a square and will calculateits perimeter**.

**Output:**

Enter the area:

23

Perimeter of the square is: 19.183326093250876

**3. Develop the program calculate Cylinder Volume., which accepts radius of a cylinder's base disk and its height and computes the volume of the cylinder.**

**Output:**

Enter the radius :

12

Enter the height :

13

Volume of the cylinder is : 5881.061447520093

**4. Utopias tax accountants always use programs that compute income taxes even though the tax rate is a solid, never-changing 15%. Define theprogram calculateTax which determines the tax on the gross pay. DefinecalculateNetPay that determines the net pay of an employee from the number of hours worked. Assume an hourly rate of $12.**

**Output:**

Days worked by employer in a year :

300

Enter the no. of working hours in a day :

6

Enter the no. of hours worked in over time :

1

Enter the no. of hours took leave :

1560

Gross Pay (in $) : 2892.0

Tax (in $) : 433.8

Net Pay (in $) : 2458.2

**5. An old-style movie theater has a simple profit program. Each customer pays $5 per ticket. Every performance costs the theater $20, plus $.50 perattendee. Develop the program calculateTotalProfit that consumes the number of attendees (of a show) and calculates how much income the show earns**.

**Output:**

Enter the no. of attendees per show :

50

Total Profit of the theater per show (in $) is : 205.0

**6. Develop the program calculateCylinderArea, which accepts radius of the cylinder's base disk and**

**its height and computes surface area of the cylinder. 2pi r h + 2 pi r square**

Enter the base radius :

12

Enter the height :

13

Surface Area of the cylinder is : 1884.9555921538758

**7. Develop the program calculatePipeArea. It computes the surface areaof a pipe, which is an open cylinder. The program accpets three values: the pipes inner radius, its length, and the thickness of its wall.**

**Output:**

Enter the inner radius :

13

Enter the length :

20

Enter the thickness :

5

Surface Area of the pipe is : 2261.946710584651

**8. Develop the program calculateHeight, which computes the height that a rocket reaches in a given amount of time. If the rocket accelerates at a constant rate g, it reaches a speed of g • t in t time units and a height of 1/2 \* v \* t where v is the speed at t.**

**Output:**

Enter the time (in seconds) :

300

Height reached (in meters) is : 441000.0

**9. Develop a program that computes the distance a boat travels across a river, given the width of the river, the boat's speed perpendicular to the river, and the river's speed. Speed is distance/time, and the Pythagorean Theorem is c2 = a2 + b2.**

**Solution:**

**Output:**

Enter the width of the river (in meters) :

15

Enter the river's speed (in meter/sec) :

200

Enter the boat's speed (in meter/sec) :

250

The distance travelled by boat (in meters) is : 19.209372712298546

**10. Develop a program that accepts an initial amount of money (called the principal), a simple annual interest rate, and a number of months will compute the balance at the end of that time. Assume that no additional deposits or withdrawals are made and that a month is 1/12 of a year. Total interest is the product of the principal, the annual interest rate expressed as a decimal, and the number of years.**

**Output:**

Enter the principal amount :

15000

Enter the annual interest rate :

12

Enter the no. of months :

24

Balance after 24 month(s) is : 18600.0