Labs

(3) Level A	(2) Level B	(0) Level C
Hello User	Mixed Number Version 1	
Rectangle	Investment Calculator	
Circle	Distance Between Two Points	
Cylinder		

Hello User

Write a program gets the user's name and then tells the user hello. For example if John were using the program, it would display "Hello John." This program will store data with the type String.

Example Output:

Enter your name: Jake
Hello Jake!

Rubric (counts as 1 other grade)

Points	Task
50	Gets the uses name
50	Tells the user hello

Rectangle

Write a program gets the width and height for a rectangle from the user. After getting the user's input it will display the perimeter and area for the rectangle. This program will store data with the type int.

Formulas

perimeter = 2*length + 2*width
area = length*width

Example Output:

---Rectangle Program---
Enter the length (whole number): 5
Enter the wide (whole number): 6

Rectangle properties:
Length- 5
Width- 6
Perimeter- 22
Area- 30

Rubric (counts as 1 other grade)

Points	Task
20	Gets length from the user
20	Gets width from the user
20	Correct perimeter
20	Correct area
20	Formatting and neatness

Circle

Write a program gets the radius of a circle from the user. After getting the user's input the program will display the circumference and area for the circle. This program will store data with the type double. All the answer should be rounded to 3 decimal places.

Formulas

circumference = 2* π *radius
area = π *radius^2

Notes

Use Math.PI for the value for π

Example Output:

---Circle Program---

Enter the radius: 2.5

Circle properties:

Radius-	2.500
Circumference-	15.708
Area-	19.635

Rubric (counts as 1 other grade)

Points	Task
20	Gets data
30	Correct circumference
30	Correct volume
20	Formatting and neatness of results

Cylinder

Write a program gets the radius and height of a cylinder from the user. After getting the user's input the program will display the surface area and volume of the cylinder. This program will store data with the type double. Round all answers to 3 decimal places.

Formulas

surface_area = (2*radius * radius * π) + 2* π*radius*height
volume = radius * radius * π * height

Notes

Use Math.PI for the value for π

Example Output:

---Cylinder Program---
Enter the cylinder radius: 5
Enter the cylinder height: 6.3

Cylinder Properties
Radius- 5
Height- 6.3
Surface Area- 196.664
Volume- 494.801

Rubric (counts as 1 other grade)

Points	Task
20	Gets radius from the user
20	Gets height from the user
20	Correct surface area
20	Correct volume
20	Formatting and neatness of results

Mixed Number Version 1

Write a program gets the numerator and denominator for a fraction. The program will then display the fraction as a mixed number. The program will use the int type to store its data. The faction of part of the mixed number does not need to be reduced.

Example Output:

---Mixed Number Version 1---
Enter the numerator of the fraction: 15
Enter the denominator of the fraction: 4

The mixed number derived from the fraction 15/4 is 3 3/4.

Rubric (counts as 1 minor grade)

Points	Task
20	Gets numerator from the user
20	Gets denominator from the user
30	Correct whole number
30	Correct fraction

Distance Between Two Points

Write a program that gets two points from the user and then displays the distance between the two points. This program will store data with the type double. The answer should be rounded to 2 decimal places. The results line must be formatted in the same way as my example.

Formulas

distance between two points - $((x2-x1)^2 + (y2-y1)^2)^{1/2}$

Example Output:

---Distance Program---

Enter the x of the first point: 4
Enter the y of the first point: 6

Enter the x of the second point: 10
Enter the y of the second point: 10

The distance between (4,6) and (10,10) is 7.21 units.

Rubric (counts as 1 minor grade)

Points	Task
30	Gets data
30	Correct distance
40	Formatting and neatness of results

Investment Calculator

Write a program will calculate the money made on an investment over a given time. The program will get annual interest rate, number of years on the investment and the amount to be invested from the keyboard. The program will then display how much money there will be after the investment and how much profit was made. This program will store data with the type double. The answers should be rounded to 2 decimal places.

Formulas

monthlyInterestRate = annualInterestRate/1200
totalAfterInvestment = investedAmount *(1 + monthlyInterestRate)^{years*12}
profit = totalAfterInvestment – investedAmount

Example Output:

---Investment program---
Enter investment amount: 100
Enter annual interest rate percentage: 6
Enter the number of years on the investment: 2

Investing 100 over 2 years at an interest rate of .06 would earn 12.72 giving you a total of 112.72

Rubric (counts as 1 minor grade)

Points	Task
25	Gets data
25	Correct total after the investment
25	Correct profit
25	Formatting and neatness.