PYTHON PROGRAMMING 1
TEST NO. 1 (EXAMPLE)

- Place your first and last name, student ID number, date, course code (**CP1S02005E**), class type (**Specialist Workshop**), and the name of the IDE (**Visual Studio Code**) at the beginning of the program's source code as a comment.

Points	**5 pts.**

- Calculate the perimeter of an ellipse **L** with parameters **c** and **d**. Use the appropriate constant for the number π. Read the values of parameters **c** and **d** from the keyboard. Display the result with an accuracy of 3 decimal places.

$$L = \pi\left(1.5(c+d) - \sqrt{cd}\right)$$

Points	**15 pts.**

- The cost of car insurance is a certain percentage of its value and depends on the driver's age. Drivers are divided into five groups (table).

Group	Age Range	Percentage
0	18 to 25 years	8.25%
1	Over 25 to 35 years	7.25%
2	Over 35 to 45 years	6.25%
3	Over 45 to 55 years	6.00%
4	Over 55 years	6.50%

- Read the car's **value** and the driver's **age**. Based on the driver's age, determine and display the **group** they belong to. Then, calculate and display the cost of car insurance (as a real number). Display the cost with an accuracy of 2 decimal places and add the currency symbol.

Points	**15 pts.**

Points:

0 ÷ 50 pts. - 2	51 ÷ 60 pts. - 3	61 ÷ 70 pts. - 3,5
71 ÷ 80 pts. - 4	81 ÷ 90 pts. - 4,5	91 ÷ 100 pts. - 5

- Create a list containing **n** pseudo-random numbers ranging from **1** to **50**. Display the list on the screen. Read the value of **n** from the keyboard.
- Calculate and display the **arithmetic mean** of all numbers in the list.
- Create two new lists. Copy numbers **less than or equal** to the mean into the first list and numbers **greater than** the mean into the second list. Display the contents of both lists on the screen.

Points	**20 pts.**

- A group of people visited several cities in Europe during the summer. Define a dictionary where the keys are people's names, and the values are lists of cities they visited. One person could have visited multiple cities.
- Define a second dictionary where the keys are city names, and the values are the distances of those cities from Bialystok. Use the following cities and distances: Berlin - 659 km, Paris - 1528 km, London - 1588 km, Rome - 1482 km, Prague - 692 km, Oslo - 1070 km.
- For each person, display in a single line: the person's name, the visited cities, and the total distance from Białystok to those cities.
- Display the name of the person whose total travel distance is the greatest.

Points	**25 pts.**

- Three lists contain the names of people who participated in three rounds of a sports competition. The same individuals may appear on multiple lists.
- Display an alphabetically sorted list of unique individuals who participated in at least one round. Names should not be repeated.

Points	**20 pts.**

Notes:

- if the program fails to compile, the entire test is **0 points**
- all subpoints should be implemented within a **single program**