Student's name:

Information Technology: Short exam 20.11.2014
Group A

Question 1

Write a function to calculate surface area and volume of a cuboid (rectangular parallelepiped). Write a script to show usage of such function.

Question 2

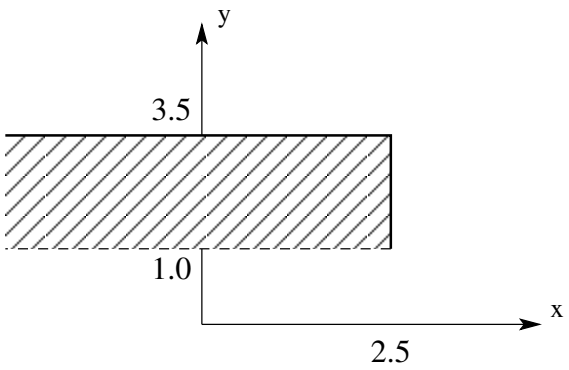
The sequence is given by the recursive formula:

$$a_1 = 2$$
$$a_{k+1} = \sin(a_k + 1) \quad \text{for } k > 1$$

Write a program to show N initial elements of this sequence.

Question 3

Write a program to chec if point $P(x, y)$ belongs to the hatched area in the figure below:



Pay attention to the marking of area borders.

Question 4

Write a function to calculate average segment length of a polyline. The function takes on input coordinates x_i, y_i, $i = 1, ..., N$ of the polyline vertices.

Student's name:

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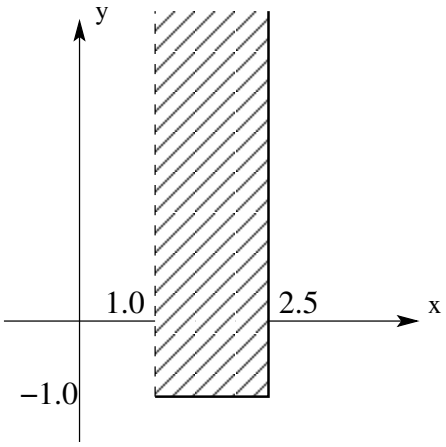
Group B

Question 1

Write a function to calculate average segment length of a polyline. The function takes on input coordinates x_i, y_i, $i = 1, ..., N$ of the polyline vertices.

Question 2

Write a program to check if point $P(x, y)$ belongs to the area filed with hatching pattern in the figure below:



Pay attention to the marking of area borders.

Question 3

The sequence is given by the recursive formula:

$$a_1 = \frac{1}{4}$$
$$a_k = a_{k-1}^2 + 1 \quad \text{for } k \geq 1$$

Write a program to show N initial elements of this sequence.

Question 4

Write a function to calculate ratio between surface area and volume of a cuboid (rectangular parallelepiped). Write a script to show usage of such function.