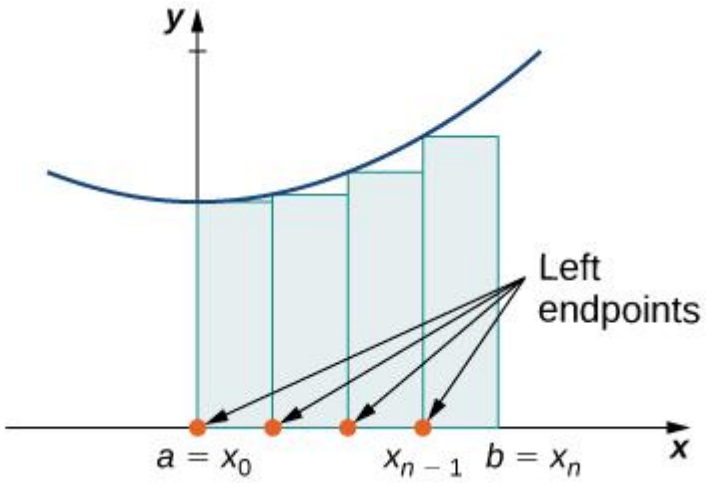
Expression Midterm 2 2023

Assume that we can approximate the area under a curve using the method shown in the figure below.



You can divide the area starting from x=a to x=b into n bars. For example, if a = 0 and b = 10, and you want to divide this area into 10 bars, you can achieve this by setting 0, 1, 2,…,9 to x_0, x_1, x_2,…,x_9 respectively. Each bar will have a width of 1 unit. Therefore, the total area under the curve will be $f(x_0) * 1 + f(x_1) * 1 + f(x_2) * 1 + \ldots + f(x_9) * 1$.

In this question, we will use this method to approximate the area under the curve of $f(x) = c_1x^2 + c_2x + c_3$ and fix the number of bars to 10.

So if c_1, c_2, and c_3 are 1, 2, 4 respectively, we can approximate the area under the curve starting from a = 1 to b = 9 using n = 10 bars (where the width of each bar is (9-1)/10 = 0.8) as shown in the table below:

	xi	f(xi)	f(xi)*(width of bar)
x0	1	7.00	5.60
x1	1.8	10.84	8.67
x2	2.6	15.96	12.77
x3	3.4	22.36	17.89
x4	4.2	30.04	24.03
x5	5	39.00	31.20
x6	5.8	49.24	39.39
x7	6.6	60.76	48.61
x8	7.4	73.56	58.85
x9	8.2	87.64	70.11
		Total	317.12

Your task is to write a program that reads a, b, c_1, c_2, and c_3 from the keyboard and shows the obtained the area under the curve. The output must be rounded by the function `round(output,2)`.

Input

The input consists of five lines, each containing a real number. The numbers represent the values of get a, b, c_1, c_2, and c_3 respectively.

Output

One line contains the output of the program rounded by `round(output,2)`.

Examples

Input	Output
1 9 1 2 4	317.12
1 10 1 2 4	535.0
1 8 1 2 4	234.95
2.1 10.5 2.4 5.6 -9.8	1008.65