

Lab 5

- **Due** No due date

- **Points** 100

Question 1. Write a program that computes and displays the area of a rectangle and an ellipse whose side values are given. First, the program will read two integer values: **a** and **b**. Then, it will calculate two area values (both of them will be double values):

1. The area of the rectangle whose sides are **a** and **b**.
2. The area of the ellipse whose major and minor axis lengths are **a** and **b** respectively.

Lastly, your program will print the resulting area values to the console as seen in the examples.

NOTE: The area of a rectangle whose sides are a and b: **Area = a*b**

NOTE: The area of an ellipse whose major and minor axis lengths are a and b: **Area = PI * a *b**

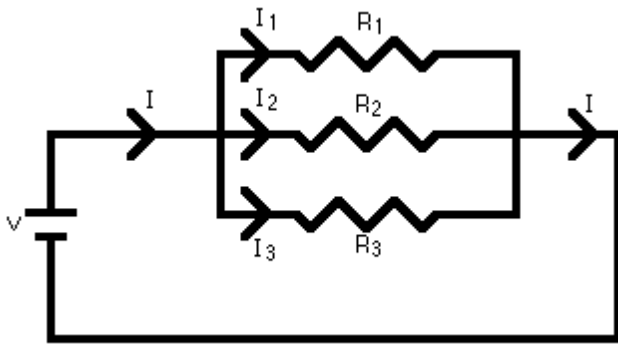
NOTE: Take PI as 3.14

Input	4 6	9 12	65 3
Output	The area of the rectangle is 24 The are of the ellipse is 75.360000	The area of the rectangle is 108 The are of the ellipse is 339.120000	The area of The are of

Question 2. Write a program that reads an **UPPERCASE** letter (i.e., 'B', 'H') and tells the index of that letter in the English alphabet (i.e., 'B' is the 2- letter in the English Alphabet, 'H' is the 8- letter in the English Alphabet).

Input	B	H	M
Output	2	8	13

Question 3. Write a program that calculates the currents on three parallel branches in the circuit show below.



The program will read the input voltage, V , and the three resistance values, R_1 , R_2 , and R_3 all as double values. Then, it will calculate the currents passing through each branch, I_1 , I_2 , and I_3 as double values and prints them to the console.

HINT: Ohm's Law: $V = I * R$

(This law applies to all circuits and also all branches individually.)

HINT: Due to Ohm's Law, the voltage passing through each branch is the same and equal to V .

NOTE: All of the inputs will be positive values.

Input	21					13					5
	4 7 8					3 6 12					2 8 2

Output	5.250000	3.000000	2.625000	4.333333	2.166667	1.083333	2.500000	0.625000	2.500000
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