1. Character to ASCII converter

Write a program that takes a single character as input and converts it to its corresponding ASCII value. ASCII (American Standard Code for Information Interchange) is a character encoding standard that represents each character as a numeric value.

Input Format

The input consists of a single character, character, which is a printable ASCII character.

Constraints

The input character is a valid ASCII character.

Output Format

The program should print a single integer, which is the ASCII value of the input character.

2. Swap Characters Without Temporary Variable

You are given two characters, char1 and char2, which are not part of any string. Your task is to write a program that swaps the values of char1 and char2 without using a temporary variable.

Input Format

The input consists of two components:

A character, char1. A character, char2.

Constraints

The characters char1 and char2 are valid ASCII characters.

Output Format

The program should return the modified values of char1 and char2 after swapping them.

3. Arithmetic Operations with Mixed Data Types

You are given two numbers, num1 and num2. Your task is to write a program that performs every operation on these numbers and prints the result.The arithmetic operations are:Addition (+) Subtraction (-) Multiplication (*) Division (/)Your program should handle the following data types: - num1 and num2 are either integers or floating-point numbers. - The result should be of the same data type as the inputs. If both num1 and num2 are integers, the result should be an integer. If at least one of them is a floating-point number, the result should be a floating-point number.

Input Format

The input consists of two lines:The first line contains a number, num1, which can be an integer or floating-point number. The second line contains a number, num2, which can be an integer or floating-point number.

Constraints

For integers: -10^9 <= num1, num2 <= 10^9 For floating-point numbers: -10^9 <= num1, num2 <= 10^9 The result will always be within the range of a 32-bit signed integer or a 32-bit floating-point number. Division by zero will not occur.

Output Format

Print a 4 lines containing the result of the 4 arithmetic operations.Print the result as a floating-point number and print it with two decimal places.

4. Integer Square Calculator

Write a C program that takes an integer as input and calculates the square of that integer. The square of an integer n is calculated as n * n.

Input Format

The input consists of a single integer, n, where (-10^9 <= n <= 10^9).

Constraints

The input integer n is within the range of a 32-bit signed integer

Output Format

The program should print a single integer, which is the square of the input integer n.

5. Integer Square Root Calculator

You are tasked with writing a program that calculates the square root of a given positive integer. However, you need to ensure that the input integer is non-negative, as square roots are not defined for negative numbers in the real number system.

Input Format

The input consists of a single positive integer N, where N (0 <= N <= 10^9) is the number for which you need to calculate the square root.

Constraints

1 <= n <= 10^9

Output Format

Print the square root of the input integer with a precision of 2 decimal places. If the input integer is negative, print "Invalid input" instead.

6.Smallest Integer Challenge

Write a C program that reads two integers from the user and determines the smallest of the two numbers.

Input Format

The program should prompt the user to enter two integers, one on each line.

Constraints

Both input integers will be within the range of a 32-bit signed integer. The integers can be positive, negative, or zero.

Output Format

The program should output a single line stating: "The smallest of num1 and num2 is smallest", where num1 and num2 are the input integers, and smallest is the smallest among them.

7. Average of Two Integers.

Create a program to find the average of two integers.

Input Format

The program should take two integers as input.

Constraints

The input integers will be in the range of (-10^6) to (10^6).

Output Format

Output a single integer, which is the average of the two input integers.

8. Summation of Natural Numbers

Write a program to calculate the sum of the first n natural numbers.

Input Format

The program should take one natural number as input.

Constraints

The input number must be positive and nonzero integer.

Output Format

Output a single integer , which is the summation of all numbers between 0 and input number.

9. Vowel or Consonant Checking

Create a program to check if given character is a vowel or consonant.

Input Format

The program should take one character as input.

Constraints

Only one character is allowed as input.

Output Format

Output a string. Output "Vowel" if the input character is a vowel and "Consonant" if the input character is a consonant.

10. Perfect Number Checker

Write a program that takes a positive integer as input and checks whether it's a perfect number or not. If it's a perfect number, print "Yes," otherwise, print "No."A perfect number is a positive integer that is equal to the sum of its positive divisors (excluding itself). In other words, a perfect number is a number that is the sum of its proper divisors, where a proper divisor of a positive integer is any positive integer other than the number itself that divides the number evenly.For example, the number 28 is a perfect number because its divisors are 1, 2, 4, 7, and 14, and the sum of these divisors is 1 + 2 + 4 + 7 + 14 = 28

Since the sum of its divisors is equal to 28, it is classified as a perfect number.

Input Format

A single positive integer n (1 <= n <= 10^8), where n is the number to be checked for perfection.

Constraints

The input integer n is positive. The input integer n is within the given range.

Output Format

"Yes" if the input integer is a perfect number. "No" if the input integer is not a perfect number.

11. Floating Point Addition and Integer Assignment

You are given two floating-point numbers, a and b. Your task is to write a program that performs the following steps:Read the values of a and b from the input. Add a and b together. Assign the result of the addition to an integer variable, result. Display the values of a, b, and result as specified in the output format.

Input Format

The input consists of two linesThe first line contains a floating-point number, a. The second line contains a floating-point number, b.

Constraints

-10^9 <= a, b <= 10^9 The result of the addition will always be within the range of a 32-bit signed integer.

Output Format

Print three lines:The first line should display the value of a with exactly two decimal places. The second line should display the value of b with exactly two decimal places. The third line should display the value of result as an integer.

12. Calculate Gross Salary

An employee in a company is paid as follows:

Along with the basic salary, the employee is given a dearness allowance (DA) of 40% of their basic salary. Additionally, the employee is given a house rent allowance (HRA) of 20% of their basic salary. Write a program that takes the basic salary of an employee as input and calculates the gross salary, which is the sum of the basic salary, DA, and HRA.

Input Format

The input consists of a single line containing an integer, basic_salary, which represents the basic salary of the employee. (0 <= basic_salary <= 10^5)

Constraints

The basic salary is a non-negative integer. All input values are within the range of a 32-bit signed integer. The gross salary will always be within the range of a 32-bit signed integer.

Output Format

Print a single integer, which is the gross salary of the employee.

13. Calculate Mean of Five Numbers

Write a program that takes five integer numbers, n1, n2, n3, n4, and n5, as input and calculates the mean of these numbers. The mean is calculated as the sum of the numbers divided by 5.

Input Format

The input consists of a single line containing five integer numbers, separated by spaces.

Constraints

-10^9 <= n1, n2, n3, n4, n5 <= 10^9 All input values are within the range of a 32-bit signed integer.

Output Format

Print a single integer, which is the mean of the five input numbers. The result should be rounded to the nearest integer.

14. Distance Unit Converter

You are given a distance in kilometers, and your task is to write a program that converts and prints this distance in four different units: a. Meters b. Feet c. Inches d. Centimeters

The conversion factors for these units are as follows:1 kilometer (km) = 1000 meters (m) 1 kilometer (km) = 3280.84 feet (ft) 1 kilometer (km) = 39370.1 inches (in) 1 kilometer (km) = 100000 centimeters (cm) Write a program that takes the distance in kilometers as input and calculates and prints the equivalent distance in each of the mentioned units with six decimal places of precision.

Input Format

The input consists of a single line containing a floating-point number, distance_km, representing the distance in kilometers. (0 <= distance_km <= 10^9)

Constraints

The input value is within the range of a 32-bit floating-point number. The output values should have two decimal places of precision.

Output Format

Print four lines:The first line should display the distance in feet with two decimal places. The second line should display the distance in meters with two decimal places. The third line should display the distance in inches with two decimal places. The fourth line should display the distance in centimeters with two decimal places.