

### Problem 1: 10M

Write a program to calculate the volume and surface area of a sphere from its radius. ( Formulas that might be helpful:  $V = \frac{4}{3}\pi r^3$     $A = 4\pi r^2$

Consider  $\pi = 3.14$

Input: A Single Integer denoting the value of 'r'

Output: First Line Denotes the Volume of the Sphere.

Second Line Denotes the Area of Sphere.

Sample TC:

Input:

5

Output:

392.5

314.0

### Problem 2: 10M

Write a program that gives the molecular weight of a hydrocarbon

Use the following weights:

H or h - 1.0079

C or c – 12.011

O Or o - 15.9994

Input: A Single String denoting the molecular formula of a hydrocarbon.

Output: A single integer that denotes molecular weight of respective compound

Sample TC:

Input:

C6h12O6

Output:

180.1548

### Problem 3: 10M

Write a program to find sum of first n natural numbers.

Input: A Single Integer denoting the value of 'n'

Output: A single integer denoting the sum of squares of n natural numbers..

Sample TC:

Input:

2

Output:

5

#### Problem 4: 10M

Write a program that accepts quiz score and prints the corresponding grade.

Score	Grade
5	A
4	B
3	C
2	D
1	F
0	F

Input: A Single Integer denoting the score

Output: A single character denoting the grade

Sample TC:

Input:

5

Output:

A

#### Problem 5: 10M

Write a program to find the slope of a line joining two points (x1,y1) and (x2,y2) in a 2D plane.

Input: Two lines denoting coordinates of two points

Output: slope in p/q form

Sample TC:

Input:

(2,7)

(4,4)

Output:

-3/2

#### Problem 6: 15M

Write a program that allows user to type in a phrase and outputs the acronym of that phrase

Input: A Single Phrase

Output: Acronym of the given phrase (Must be in Capitals only).

Sample TC:

Input:

random Access memory

Output:

RAM

Problem 7: 15M

Write a program that calculates the numeric value of a single name provided as input.

Numeric Values: a=1, b=2, c=3,..... , z= 26

E.g:

Numeric Value of “Zelle” is  $26(Z)+5(e)+12(l)+12(l)+5(e) = 60$

Input: A Single Name

Output: Numeric Value for the corresponding input

Sample TC:

Input:

Shyam Sundar

Output:

143