1. General Input and Output

Problem 1:

Print 'Hello World!' on the screen.

Problem 2:

You have to print the following three lines on the screen:

I

Love

CSE

Problem 3:

Take an integer (32-bit) as input and print that number.

Problem 4:

Take two integers (32-bit) as input and print their sum.

Sample Input	Output
14 8	22
8 48	56
21 9	30

Problem 5:

Take two integers (32-bit) as input and print their sum, difference (first number minus second number), product, integer division result (i.e., how many times the second number divides the first number), and remainder (the leftover when the first number is divided by the second number).

Sample Input	Output
14 8	22 6 112 1 6
21 9	30 12 189 2 3

Problem 6:

Suppose you walk to school from home every day. From your home to the school, you take s number of steps, and with each step you cover d centimeters of distance. The values of s and d will be given as input (both are 32-bit integers). Print the total distance from your home to the school in centimeters.

Sample Input	Output
1000 15	15000 cm
2297 14	32158 cm

Problem 7

A student has been given marks in three subjects. Print the total marks obtained in the three subjects.

Sample Input	Output
75 86 61	222

Problem 8

You have decided to help a poor student by collecting money from your friends. You and your friends together donated as much money as you could. Print the total amount of money collected.

Sample Input	Output
9 10 16 12 26 10 18 7 15 20	143

Problem 9

Input a positive number and print its hexadecimal form.

Sample Input	Output
4	4
210	d2
1722	6ba

Exercise 1.1

1. Print the names of the seven days of the week in English, each on a separate line.
2. Print the names of the twelve months of the year in English, each on a separate line.
3. Print your full name, your mother's name, and your father's name in English on separate lines.
4. Before every exam in your friend's annual examination, he/she uses a new pen. Input the total number of exams and print how many pens your friend used.
5. Input the price of one pen and the total number of pens, and print the total cost of the pens.
6. You bought **c** eggs from the market. On the way home, **b** eggs were broken. Print how many eggs are still unbroken.
7. Input the value of **N** and print how many complete weeks are in **N** days.
8. In one week, a drama named "Amader Gram" is shown in **3 episodes per day**. Input the number of weeks **W** and print how many episodes will be shown in **W** weeks.

9. You have a basket of apples. Input the total number of apples and the average weight of each apple (in grams). Print the total weight of all apples (in kilograms).

10. Suppose on your birthday you bought a big cake for your classmates. After giving equal pieces to everyone, some cake was left. Input the total number of classmates and the total number of pieces. Print how many pieces are left over.

11. From the above example, print how many people received cake.

12. Input a positive number and print its octal form.

13. Input a three-digit number and print the sum of its digits.

2. Floating Point Number

Problem 1

Two positive numbers will be given as input. You have to calculate and print their division result (including decimal fraction).

Sample Input	Output
12 8	1.500000

Problem 2

The heights of three people are given (in meters). Print their average height (up to two digits after the decimal point).

Sample Input	Output
1.65 1.82 1.71	1.73

Problem 3

You know the heights of all your classmates in meters. You want to determine the height in feet and inches.
Write a program that converts height from meters to feet and inches.

Sample Input	Output
1.94	6 feet 4.98 inch
1.58	5 feet 2.20 inch

Problem 4

Input the base and height of a triangle and print its area.

Sample Input	Output
3 4	6.00

Problem 5

Input the radius of a sphere. Print its surface area and volume.

Sample Input	Output
3	Surface Area: 113.10 Volume: 113.10

Problem 6

Find the value of the given mathematical expression.

$x^5 - 3x^4 - 7x^3 + 13x^2 + 3742$

Sample Input	Output
5	4442.00
-5	-58

Problem 7

The temperature of a room is given in degrees Celsius (°C). Convert it into degrees Fahrenheit (°F).

Sample Input	Output
36.8	98.24

Problem 8

Input a fractional number and print it in scientific notation.

Sample Input	Output
5	5.000000e+000
890e12	8.900000e+14

Exercise 2.1

1. You have a basket of apples. Input the total number of apples and the average weight of each apple (in grams) and print the total weight of all apples (in kilograms).
2. Write a program to determine the value of the following expressions:
    a. $x^2 - 5x + 12$
    b. $e^{5x - 1}$
    c. $\sin(x/2)$
    d. $\cos^2(2x - 1)$
    e. $\log_2 x^3 + 3x - 1$

3. Write programs to perform the following conversions:

       a) centimeter to inch

       b) inch to centimeter

       c) foot to meter

       d) meter to foot

       e) pound to kilogram

       f) kilogram to pound

       g) kilometer to mile

       h) mile to kilometer

       i) km/hour to mile/hour

       j) mile/hour to km/hour

4. Input the length of one side of a square and print its area.

5. Input the length and width of a rectangle and print its area.

6. Input the length of two sides of a right triangle and print its area.

7. Input the length of one edge of a cube and print its volume and surface area.

8. Input the radius of the base and height of a cylinder and print its volume and curved surface area.

9. Input the ages of ten people and print their average age.

3. Character Type & Various

Problem 1

Input the exam marks (integers) of five students and print them in such a way that they appear in four columns.

Sample Input	Output
12 34 53 90 100	12 34 53 90 100

Problem 2

Print the following text.

```
H    H   EEEEE  L       L           OOO
H    H   E      L       L         O     O
HHHHH    EEE    L       L         O     O
H    H   E      L       L         O     O
H    H   EEEEE  LLLLL   LLLLL      OOO
```

Problem 3

Print the following pattern.

```
       *
      ***
     *****
   *********
**********
   *********
     *****
      ***
       *
```

Problem 4

Input a character and print its ASCII value.

Sample Input	Output
d	100
A	65

Problem 5

Input a lowercase English letter and print the corresponding uppercase letter.

Sample Input	Output
d	D
a	A

Exercise 3.1

1. Input the ASCII value of a character and print the corresponding character.
2. Input an uppercase English letter and print the corresponding lowercase letter.
3. Print the following designs/patterns:

   a.   C C C C
      C C
      C
      C C
       C C C C

   b.   A   BBBB   CCCC DDD   EEEEE
       A A   B   B   CC   D   D   E
       AAAAA   BBBB   C   D   D EEE
       A   A B   B   CC   D   D   E
       A   A BBBB   CCCC DDD   EEEEE

   c.   11   +   2222   ===   3333
       1   +   2   ===   3
       1   +++++   22   ===   33
       1   +   22   ===   3
       11111   +   22222   ===   3333

d.
```
    #
   ##
  ###
 ####
#####
```

e.
```
#
##
###
####
#####
```

f.
```
#
 #
  #
   #
```

4. Input a three-digit integer and print the sum of its digits.