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**Write the C++ program of the following problems.**

**Problem 1:**

Write a C++ program to print half pyramid using \*

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

**Problem 2:**

Write a C++ program to ask the user to enter two integers. Then, store the sum of those two integers in a variable and then display the sum on the screen.

**Test Case**

```
C:\Windows\System32\cmd.exe  
  
C:\Users\pc\Desktop\Programing Day>c++ Task-2.cpp -o Task-2.exe  
  
C:\Users\pc\Desktop\Programing Day>Task-2.exe  
Enter Integer 1 =10  
  
Enter Integer 2 =20  
  
Sum Of The Two Integer Is =30  
  
C:\Users\pc\Desktop\Programing Day>  
  
C:\Users\pc\Desktop\Programing Day>
```

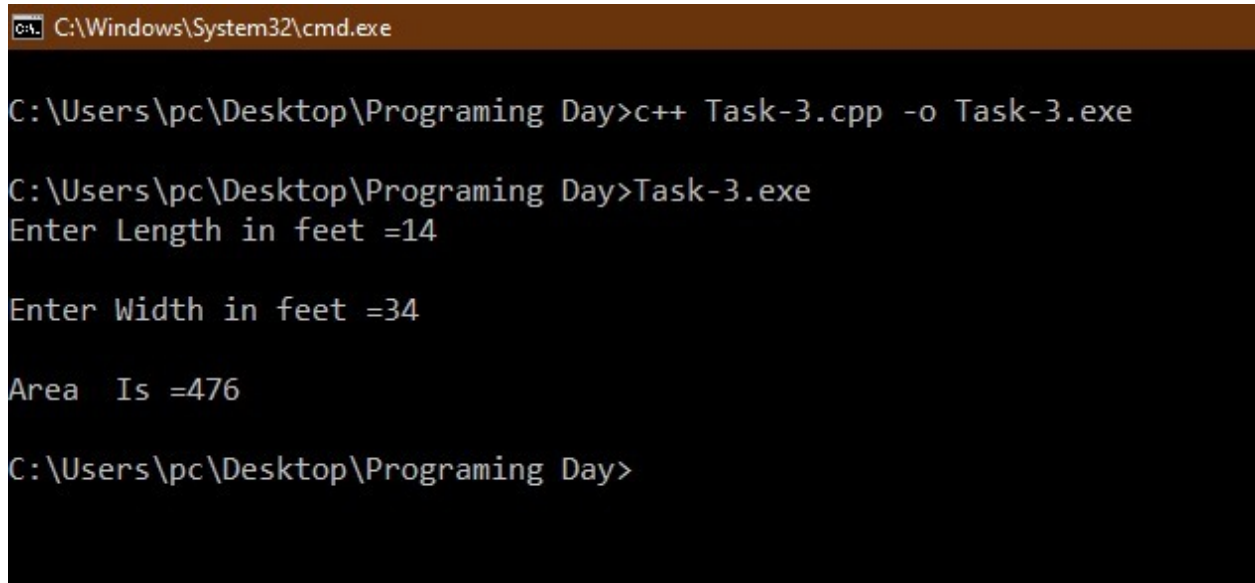
**Problem 3:**

Write a C++ program that takes the length of a rectangular fence in feet from the user and the width of the fence in feet and then outputs its area on the screen.

Formula to calculate the Area is

$$\text{Area (feet}^2\text{)} = \text{Length (feet)} * \text{Width (feet)}$$

#### Test Case



```
C:\Windows\System32\cmd.exe

C:\Users\pc\Desktop\Programing Day>c++ Task-3.cpp -o Task-3.exe

C:\Users\pc\Desktop\Programing Day>Task-3.exe
Enter Length in feet =14

Enter Width in feet =34

Area Is =476

C:\Users\pc\Desktop\Programing Day>
```

#### Problem 4:

A toy car accelerates from initial velocity to final velocity in some time. You have to write the C++ program for calculating the Final Velocity. Take initial velocity, acceleration and time as input from the user and calculate the final velocity of the car and display on the screen.

Formula to Calculate the Acceleration is

$$\text{Acceleration} = (\text{Final velocity} - \text{Initial velocity}) / \text{Time}$$

**Remember:** You have to calculate final velocity.

#### Test Case

```
C:\Windows\System32\cmd.exe

C:\Users\pc\Desktop\Programing Day>c++ Task-4.cpp -o Task-4.exe

C:\Users\pc\Desktop\Programing Day>Task-4.exe
Enter Initial Velocity =12

Enter Acceleration =23

Enter Time =2

Final Velocity Is =58
C:\Users\pc\Desktop\Programing Day>

C:\Users\pc\Desktop\Programing Day>
```

### Problem 5:

A teacher wants to calculate the students marks percentage, teachers have 5 subject marks for every student. He needs a program that automates this process by asking 5 subjects' marks from the user and calculating the percentage of students. Total marks are 500 for 5 subjects. To guide the user, first you need to display a message and then take input from the user. Do it for all 5 subjects.

Your Name:

Enter subject 1 marks:

Enter subject 2 marks:

Enter subject 3 marks:

Enter subject 4 marks:

Enter subject 5 marks:

Once all five subjects have entered, show the student name and total obtained percentage on the console.

### Problem 6:

Amir is a fat guy. He wants to lose weight but he is also weak in calculations. Write a simple C++ program which tells him how many days he will need to lose weight if he strictly follows the doctor's suggestions. Doctor suggested that if he eats 4000 calories daily, he walks for 1 hour daily. It will help him to lose 1 kg weight after 15 days. Now Amir wants to know how many days he will need to lose 12 Kg weight if he follows the doctor's suggestion.

## Test Case

```
C:\Windows\System32\cmd.exe

C:\Users\pc\Desktop\Programing Day>c++ Task-6.cpp -o Task-6.exe

C:\Users\pc\Desktop\Programing Day>Task-6.exe
Enter Weight =12

It Will Take 180 Days
C:\Users\pc\Desktop\Programing Day>
```

## Problem 7:

During each summer, Ahmad and Fatima grow vegetables in their backyard and buy seeds and fertilizer from a local nursery. The nursery carries different types of vegetable fertilizers in various bag sizes. When buying a particular fertilizer, they want to know the price of the fertilizer per pound and the cost of fertilizing per square foot. Write the Algorithm that prompts the user to enter

1. the size of the fertilizer bag in pounds.
2. the cost of the bag.
3. and the area in square feet that can be covered by the bag.

The Algorithm should then output

1. the cost of the fertilizer per pound
2. the cost of fertilizing the area per square foot.

## Test Case

```
Enter size of bag in pounds: 48
Enter cost of the bag: 24
Enter area in square feet that can be covered: 72

-----
Cost per pound of the fertilizer:2
Cost per square foot of area covered:0.333333
```

## Problem 8:

A movie in a local theater is in great demand. To help a local charity, the theater owner has decided to donate to the charity a portion from the total amount generated

from the movie. Write an Algorithm using the computational steps that prompts the user to input the

1. Movie name
2. Adult ticket price
3. Child ticket price
4. Number of adult tickets sold
5. Number of child tickets sold
6. Percentage of the amount to be donated to the charity.

First of all you have to Calculate the total amount generated by the total sold tickets. Then after donating to the charity from the total amount, show the profit amount achieved from the movie on the Screen.

#### Test Case

```
Enter Movie name: KungFuPanda3
Enter Adult ticket price: 20
Enter Child ticket price: 10
Enter the number of Adult tickets sold: 10000
Enter the number of Child tickets sold: 5000
Enter the percentage of amount donated to charity: 10

-----
Total amount generated by sold tickets:250000
Profit amount after donating:25000
```

#### Problem 9:

There is a modulus operator that returns the remainder like if we take modulus of 4 with 3 it would return 1. If we take  $7 \% 4$  it would return 3.

With the help of a modulus operator, write a program that takes a 4 digit number from the user and sum individual digits.

#### Test Case

If user enter 1234

The output would be 10

If user enter 4324

The output would be 13

If user enter 4901

The output would be 14

#### Problem 10:

Take a number from the user and print its reverse number

Hint: Use modulus operator and divide operator

### Test Case

If user enter 1234

The output would be 4321

If user enter 4324

The output would be 4234

If user enter 4901

The output would be 1094

### Problem 11:

Write a program that takes 15 numbers from the user, it adds the first 5 numbers, multiplies the next 5 numbers, and subtract the next 5 numbers. After that it adds the first two results and subtract the 3rd results and shows the final output on the monitor screen.

### Test Case

```
Enter value no.1: 12
Enter value no.2: 21
Enter value no.3: 23
Enter value no.4: 45
Enter value no.5: 3
Enter value no.6: 24
Enter value no.7: 35
Enter value no.8: 12
Enter value no.9: 2
Enter value no.10: 2
Enter value no.11: 1
Enter value no.12: 45
Enter value no.13: 3
Enter value no.14: 700
Enter value no.15: 3
```

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Resulting value: 39672

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