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Problem 1 : Python Program to add two numbers

Example:

Input: num1 = 5, num2 = 3

Output: 8

Input: num1 = 13, num2 = 6

Output: 19

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Solution 1 : Python Program to add two numbers

```
# Python3 program to add two numbers
```

```
num1 = 15  
num2 = 12
```

```
# Adding two nos  
sum = num1 + num2
```

```
# printing values  
print("Sum of {0} and {1} is {2}".format(num1, num2, sum))
```

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Solution 2 : Python Program to add two numbers

```
# Python3 program to add two numbers
```

```
number1 = input("First number: ")  
number2 = input("\nSecond number: ")
```

```
# Adding two numbers  
# User might also enter float numbers  
sum = float(number1) + float(number2)
```

```
# Display the sum  
# will print value in float  
print("The sum of {0} and {1} is {2}" .format(number1, number2, sum))
```

Problem 2 : Python Program for factorial of a number

$$n! = n * (n-1) * (n-2) * \dots * 1$$

Examples :

$$4! = 4 * 3 * 2 * 1 = 24$$

$$6! = 6 * 5 * 4 * 3 * 2 * 1 = 720$$

Problem 3 : Python Program for simple interest

Simple interest formula is given by:

$$\text{Simple Interest} = (P \times T \times R) / 100$$

Where,

P is the principle amount

T is the time and

R is the rate

EXAMPLE1:

Input : P = 10000

R = 5

T = 5

Output :2500

We need to find simple interest on Rs. 10,000 at the rate of 5% for 5 units of time.

EXAMPLE2:

Input : P = 3000

R = 7

T = 1

Output :210

Problem 4 : Python Program for compound interest

Formula to calculate compound
interest annually is given by:

Compound Interest = $P(1 + R/100)^t$
Where,

P is principle amount

R is the rate and

T is the time span

Input : Principle (amount): 1200

Time: 2

Rate: 5.4

Output : Compound Interest =

1333.099243

Problem 5 : Python Program to check Armstrong Number

```
Input : 153  
Output : Yes  
153 is an Armstrong number.  
 $1*1*1 + 5*5*5 + 3*3*3 = 153$ 
```

```
Input : 120  
Output : No  
120 is not a Armstrong number.  
 $1*1*1 + 2*2*2 + 0*0*0 = 9$ 
```

```
Input : 1253  
Output : No  
1253 is not a Armstrong Number  
 $1*1*1*1 + 2*2*2*2 + 5*5*5*5 + 3*3*3*3 =$   
723
```

```
Input : 1634  
Output : Yes  
 $1*1*1*1 + 6*6*6*6 + 3*3*3*3 + 4*4*4*4 =$   
1634
```

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Problem 6 : Python Program for Program to find area of a circle

```
Area = pi * r2
```

```
where r is radius of circle
```

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Problem 7 : Python program to print all Prime numbers in an Interval

Given two positive integer start and end. The task is to write a Python program to print all Prime numbers in an Interval.

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Definition: A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself. The first few prime numbers are {2, 3, 5, 7, 11,}.

Problem 8 : Python program to check whether a number is Prime or not

Definition: A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself. The first few prime numbers are {2, 3, 5, 7, 11,}.

Input: n = 11

Output: true

Input: n = 15

Output: false

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Problem 9 : Python Program for n-th Fibonacci number

In mathematical terms, the sequence F_n of Fibonacci numbers is defined by the recurrence relation

$$F_n = F_{n-1} + F_{n-2}$$

with seed values

$$F_0 = 0 \text{ and } F_1 = 1.$$

Hint : Recursion

Problem 10 : Python Program for printing Fibonacci numbers

In mathematical terms, the sequence F_n of Fibonacci numbers is defined by the recurrence relation

$$F_n = F_{n-1} + F_{n-2}$$

with seed values

$$F_0 = 0 \text{ and } F_1 = 1.$$

Hint : Recursion

Problem 11 : Python Program for How to check if a given number is Fibonacci number?

Input : 8

Output : Yes

Input : 34

Output : Yes

Input : 41

Output : No

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Problem 12 : Program to print ASCII Value of a character

Input : a

Output : 97

Input : D

Output : 68

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Problem 13 : Python Program for Sum of squares of first n natural numbers

Input : N = 4

Output : 30

= 1 + 4 + 9 + 16

= 30

Input : N = 5

Output : 55

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Problem 14 : Python Program for cube sum of first n natural numbers

Input : n = 5

Output : 225

$1^3 + 2^3 + 3^3 + 4^3 + 5^3 = 225$

Input : n = 7

Output : 784

$1^3 + 2^3 + 3^3 + 4^3 + 5^3 +$

$6^3 + 7^3 = 784$

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<https://youtu.be/ndzsh5ShhhA>

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