Contents

1 Convert Binary to Decimal

Accept Number from User
Divide Number by 10 and Store Remainder in variable rem
Divide Original Number by 10.
sum = sum + rem * pow(2,power);

/*pow is a function to find the power of a number.
Type *man pow* on terminal for help*/

Inside the First Iteration power = 0. Power is Incremented in each Iteration.

Calculate sum using the above formula, calculated sum is nothing but the decimal representation of the given binary number.

2 Prime Number Pyramid

```
2
3       5
7       11      13
17      19      23      29
31      37      41      43      47
```

3 Print 1-10 Numbers in Pyramid fashion

```
1
2       3
4       5       6
7       8       9       10
```

4 Right angled triangle using *

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

5 Sum of an AP series

Sample output:

```
Enter the first number of the A.P. series: 1
Enter the total numbers in the A.P. series: 5
Enter the common difference of A.P. series: 3
Sum of the series: 1 + 4 + 7 + 10 + 13 = 35
```

```
Definition of arithmetic progression (A.P.):

A series of numbers in which difference of any two consecutive
   numbers is always a same number that is constant. This
   constant is called as common difference.

Example of A.P. series:
5 10 15 20 25

Here common difference is 5 since difference of any two
   consecutive numbers for example 20     15 or 25 -20 is 5.

Sum of A.P. series:
Sn = n/2(2a + (n-1) d)

Tn term of A.P. series:

Tn = a + (n-1) d
```

6 Sum of a GP series

```
Sample output:
Enter the first number of the G.P. series: 1
Enter the total numbers in the G.P. series: 5
Enter the common ratio of G.P. series: 2
tn term of G.P. : 16.000000
Sum of the G.P. : 63.000000

Definition of geometric progression (G.P.):

A series of numbers in which ratio of any two consecutive
   numbers is always a same number that is constant. This
   constant is called as common ratio.

Example of G.P. series:

2 4 8 16 32 64
Here common difference is 2 since ratio any two consecutive
   numbers for example 32 / 16 or 64/32 is 2.

Sum of G.P. series:
Sn =a(1-(r^(n+1))/(1-r)

Tn term of G.P. series:

Tn = a(r^(n-1))
```

Sum of infinite G.P. series:

Sn = a/(1−r) **if** 1 > r
= a/(r−1) **if** r > 1

7 HCF or GCD of two numbers

This is the best way to find HCF of two numbers. In this method, smaller number is subtracted from larger number and that number is stored in place of larger number. This process is continued **until**, two numbers become equal which will be HCF.

or

The smallest of two integers entered by user is stored in variable min. Then i is initialized to min and **for** loop is executed. In each looping iteration, whether i is factor of these two numbers is checked. If i is a factor of these two numbers **then**, i will be the highest common divisor and loop is terminated using **break** statement.

8 LCM of two numbers

LCM=(num1∗num2)/GCD

or

The largest of two integers is assigned to variable max. Then, **while** loop is executed and in each iteration it is checked whether max is perfectly divisible by two numbers entered by user or not. If max is not perfecly divisible, max is increased by 1 and this process goes not **until** max is perfectly divisible by both numbers.

9 Display the following pyramids

1)

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

2)

```
A
B B
C C C
D D D D
E E E E E
```

3)

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

4)

```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

5)

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

6)

```
        1
      2 3 2
    3 4 5 4 3
  4 5 6 7 6 5 4
5 6 7 8 9 8 7 6 5
```

7)

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

8)

```
                1
              1   1
            1   2   1
          1   3   3   1
        1   4   6   4   1
      1   5   10  10  5   1
```