* NUMBER SERIES:-

1.WRITE A PROGRAM TO PRINT SERIES 0 2 6 12 20 30 42 … N.

PROGRAM:-

n=int(input("Enter the range of number(Limit):"))

i=1

while i<=n:

print((i\*i)-i,end=" ")

i+=1

OUTPUT:-

Enter the range of number(Limit):7

0 2 6 12 20 30 42

2.WRITE A PROGRAM TO PRINT SERIES 0 ,2,8,14,24,34 …N.

PROGRAM:-

n=int(input("Enter the range of number(Limit):"))

i=1

pr=0

while i<=n:

if(i%2==0):

pr=pow(i, 2) - 2

print(pr,end=" ")

else:

pr = pow(i, 2) - 1

print(pr, end=" ")

i+=1

OUTPUT:-

Enter the range of number(Limit):6

0 2 8 14 24 34

3.WRITE A PROGRAM TO PRINT ARITHMETIC SERIES 1 4 7 10 …N.

PROGRAM:-

print("Enter the First Number:")

first\_num=int(input())

print("Enter the range of number(Limit):")

n=int(input())

print("Enter the Difference Between two Number:")

diff=int(input())

while(first\_num<=n):

print(first\_num,end=" ")

first\_num+=diff

OUTPUT:-

Enter the First Number:

1

Enter the range of number(Limit):

10

Enter the Difference Between two Number:

3

1 4 7 10

4.WRITE A PROGRAM TO FIND THE SUM OF SERIES 13+23+33+43…..+N3

PROGRAM:-

n=int(input("Enter the range of number:"))

sum=0

for i in range(1,n+1):

sum+=pow(i,3)

print("The sum of the series = ",sum)

OUTPUT:-

Enter the range of number:5

The sum of the series = 225

5.WRITE A PROGRAM TO FIND THE SUM OF SERIES 2+4+6+8…….+N

PROGRAM:-

n=int(input("Enter the range of number:"))

sum=0

i=0

while i<=n:

sum+=i

i+=2

print("The sum of the series = ",sum)

OUTPUT:-

Enter the range of number:12

The sum of the series = 42

6.WRITE A PROGRAM TO FIND THE SUM OF SERIES 1+11+111+1111….+N

PROGRAM:-

n=int(input("Enter the range of number:"))

sum=0

p=1

for i in range(1,n+1):

sum += p

p = (p \* 10) + 1

print("The sum of the series = ",sum)

OUTPUT:-

Enter the range of number:3

The sum of the series = 123

7. WRITE A PROGRAM TO FIND THE SUM OF SERIES 1/2!+2/3!+3/5!+4/6!+…..N/(N+1)!

PROGRAM:-

n=int(input("Enter the value of n:"))

sum=0

for i in range(1,n+1):

sum=sum+(i/(i+1))

print("Sum of the series is:",sum)

OUTPUT:-

Enter the value of n:5

Sum of the series is: 3.5500000000000003

8.WRITE A PROGRAM TO PRINT THE FIBONACCI SERIES

PROGRAM:-

print("Enter the range of number(Limit):")

n=int(input())

i=1

a=0

b=1

c=a+b

while(i<=n):

print(c,end=" ")

c = a + b

a = b

b = c

i+=1

OUTPUT:-

Enter the range of number(Limit):7

1 1 2 3 5 8 13

9.WRITE A PROGRAM TO FIND THE SUM OF SERIES 1+3+5+7…+N

PROGRAM:-

print("Enter the range of number:")

n=int(input())

sum=0

i=1

while(i<=n):

sum+=i

i+=2

print("The sum of the series = ",sum)

OUTPUT:-

Enter the range of number:

15

The sum of the series = 64

10.WRITE A PROGRAM TO FIND THE SUM OF SERIES 1+2+3+..+N

PROGRAM:-

print("Enter the range of number:")

n=int(input())

sum=0

for i in range(1,n+1):

sum+=i

print("The sum of the series = ",sum)

OUTPUT:-

Enter the range of number:7

The sum of the series = 28

11.WRITE A PROGRAM TO FIND THE SUM OF SERIES 1!+2!+3!+…+N!

PROGRAM:-

print("Enter the range of number:")

n=int(input())

sum=0

fact=1

for i in range(1,n+1):

fact\*=i

sum+=fact

print("The sum of the series = ",sum)

OUTPUT:-

Enter the range of number:

9

The sum of the series = 409113

12.WRITEA PROGRAM TO FIND THE SUM OF SERIES 9+99+999+9999……+N

PROGRAM:-

n=int(input("Enter the range of number:"))

sum=0

p=9

for i in range(1,n+1):

sum += p

p=(p\*10)+9

print("The sum of the series = ",sum)

OUTPUT:-

Enter the range of number:8

The sum of the series =  111111102

* NUMBER PATTERN:-

1.WRITE A PROGRAM TO PRINT FOLLOWING PATTERN USING LOOP

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

PROGRAM:-

rows = 6

for i in range(rows):

for j in range(i):

print(i, end=' ')

print(' ')

OUTPUT:-

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

2.PYRAMID PATTERN OF NUMBERS

PROGRAM:-

rows = 5

for i in range(1, rows + 1):

for j in range(1, i + 1):

print(j, end=' ')

print(' ')

OUTPUT:-

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

3.INVERTED PYRAMID PATTERN OF NUMBERS

PROGRAM:-

rows = 5

b = 0

# reverse for loop from 5 to 0

for i in range(rows, 0, -1):

b += 1

for j in range(1, i + 1):

print(b, end=' ')

print('\r')

OUTPUT:-

1 1 1 1 1

2 2 2 2

3 3 3

4 4

5

4.INVERTED PYRAMID PATTERN WITH THE SAME DIGIT PATTERN:-

PROGRAM:-

rows = 5

num = rows

# reverse for loop

for i in range(rows, 0, -1):

for j in range(0, i):

print(num, end=' ')

print("\r")

OUTPUT:-

5 5 5 5 5

5 5 5 5

5 5 5

5 5

5

5.ALTERNATE NUMBERS PATTERN USING WHILE LOOP

PROGRAM:-

rows = 5

i = 1

while i <= rows:

j = 1

while j <= i:

print((i \* 2 - 1), end=" ")

j = j + 1

i = i + 1

print(' ')

OUTPUT:-

1

3 3

5 5 5

7 7 7 7

9 9 9 9 9

6.REVERSE PYRAMID OF NUMBERS

PROGRAM:-

rows = 6

for i in range(1, rows):

for j in range(i, 0, -1):

print(j, end=' ')

print(" ")

OUTPUT:-

1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

* PYRAMID PATTERNS:-

1.SIMPLE HALF PYRAMID:-

rows = 5

for i in range(0, rows):

for j in range(0, i + 1):

print("\*", end=' ')

print("\r")

OUTPUT:-

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

2.DOWNWARD HALF – PYRAMID PATTERN OF STAR

PROGRAM:-

rows = 5

for i in range(rows + 1, 0, -1):

for j in range(0, i - 1):

print("\*", end=' ')

print(" ")

OUTPUT:-

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

3.DOWNWARD FULL PYRAMID

PROGRAM:-

rows = 5

k = 2 \* rows - 2

for i in range(rows, -1, -1):

for j in range(k, 0, -1):

print(end=" ")

k = k + 1

for j in range(0, i + 1):

print("\*", end=" ")

print(" ")

OUTPUT:-

\* \* \* \* \* \*

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

4.RIGHT DOWN MIRROR STAR PATTERN:-

PROGRAM:-

rows = 5

i = rows

while i >= 1:

j = rows

while j > i:

print(' ', end=' ')

j -= 1

k = 1

while k <= i:

print('\*', end=' ')

k += 1

print()

i -= 1

OUTPUT:-

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

5.EQUILATERAL TRIANGLE PATTERNOF STAR:-

PROGRAM:-

print("Print equilateral triangle")

size = 7

m = (2 \* size) - 2

for i in range(0, size):

for j in range(0, m):

print(end=" ")

m = m - 1

for j in range(0, i + 1):

print("\* ", end=' ')

print(" ")

OUTPUT:-

\*

\* \*

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6.RIGHT STAR PATTERN OF STAR:-

PROGRAM:-

rows = 5

for i in range(0, rows):

for j in range(0, i + 1):

print("\*", end=' ')

print("\r")

for i in range(rows, 0, -1):

for j in range(0, i - 1):

print("\*", end=' ')

print("\r")

OUTPUT:-

\*

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\* \*

\*

* PROBLEMS:-

1.CONVERT DECIMAL TO BINARY NUMBER

PROGRAM:-

decimal\_num = int(input("enter the decimal number:"))

binary\_num = 0

i = 0

while(decimal\_num!=0):

remainder = decimal\_num%2

binary\_num = binary\_num+remainder\*(10\*\*i)

decimal\_num = decimal\_num/2

i = i+1

print("the binary equivalent =",binary\_num)

OUTPUT:-

Enter the decimal number : 7

The binary equivalent = 111

2.CONVERT BINARY TO DECIMAL NUMBER

PROGRAM:-

binary\_num = int(input("enter the binary number:"))

decimal\_num = 0

i = 0

while(binary\_num!=0):

remainder = binary\_num%2

decimal\_num = decimal\_num+remainder\*(10\*\*i)

binary\_num = binary\_num/2

i = i+1

print("the decimal equivalent =",decimal\_num)

OUTPUT:-

Enter the binary number : 1101

The decimal equivalent is 13

3.CHECK THE GIVEN NUMBER IS ARMSTRONG NUMBER

PROGRAM:-

num = int(input("Enter a number: "))

sum = 0

temp = num

while temp > 0:

digit = temp % 10

sum += digit \*\* 3

temp //= 10

if num == sum:

print(num,"is an Armstrong number")

else:

print(num,"is not an Armstrong number")

OUTPUT:-

Enter a number: 333

333 is not an Armstrong number

4.REVERSING A NUMBER

PROGRAM:-

Num = int(input("enter the number :"))

print("the reversed number is :",)

while(num! =0):

temp = num%10

print(temp, end=" ")

num = num/10

OUTPUT:-

enter the number : 123

the reversed number is : 3 2 1

5. PRINT ALL THE PRIME NUMBERS FROM 1 – 50

PROGRAM:-

for i in range(1,50):

if i>1:

for j in range(2,i):

if i%j==0:

break

else:

print(i)

OUTPUT:-

2

3

5

7

11

13

17

19

23

29

31

37

41

43

47

6. PRINT ALL THE LEAP YEAR FROM 1900 – 2000

PROGRAM:-

print("leap years from 1900-2000 are :")

for i in range(1900,2000):

if(i%4==0):

print(i,end='')

OUTPUT:-

1900 1904 1908 1912 1916 1920 1924 1928 1932 1936 1940 1944 1948 1952 1956 1960 1964 1968 1972 1976 1980 1984 1988 1992 1996

* REFERENCE
* OPEN AI
* PYNATIVE
* GEEKS FOR GEEKS
* W3RESOURCE
* TECHNOTIP.COM
* QUORA
* PROGRAMIZ