PROGRAM CODE:

#gcd of two nos

n1=int(input("Enter a number: "))

n2=int(input("Enter another number: "))

if n1<n2:

(n1,n2)=(n2,n1)

rem=n1%n2

while rem!=0:

(n1,n2)=(n2,n1%n2)

rem=n1%n2

print ("gcd of given numbers is : ",n2)

OUTPUT:

Enter a number: 144

Enter another number: 18

gcd of given numbers is : 18

PROGRAM CODE:

#Square root using Newton's Method

num=int(input("Enter no. :"))

approx=num

better=1

while better!=approx:

approx=better

better=(approx + num/approx)/2

print("Square root:" , better)

OUTPUT:

Enter no. :2

Square root: 1.414213562373095

PROGRAM CODE:

#exponentiation without using\*\*

base=int(input('enter base '))

exp=int(input('enter exponent '))

result=1

while(exp>0):

result=base\*result

exp=exp-1

print('The result is',result)

OUTPUT:

enter base 5

enter exponent 3

The result is 125

PROGRAM CODE:

#two digit nos divisible by 3 or 4

i=10

while(i<100):

if(i%4==0 or i%3==0):

print(i)

i=i+1

OUTPUT:

12

15

16

18

20

21

24

27

28

30

32

33

36

39

40

42

44

45

48

51

52

54

56

57

60

63

64

66

68

69

72

75

76

78

80

81

84

87

88

90

92

93

96

99

PROGRAM CODE:

#Sum of all digits of a number

n=int(input("Enter number:"))

sum=0

while n >0:

l=n%10

sum=sum+l

n=n//10

print("Sum of the digits:",sum)

OUTPUT:

Enter number:893

Sum of the digits: 20

PROGRAM CODE:

#integer to binary

num=int(input('enter num '))

if num < 0:

print('Must be a positive integer')

elif num==0:

print ('the binary no of',num,'is','0')

else:

b=0

i=1

a=num

while num!=0:

r=num%2

num=num//2

b=b+i\*r

i=i\*10

print ('the binary no of',a,'is',b)

OUTPUT:

enter num 4

the binary no of 4 is 100

PROGRAM CODE:

#nth multiplication table

n=int(input('enter number '))

m=int(input('enter no of values '))

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

print(n,'\*',i,'=',n\*i)

OUTPUT:

enter number 5

enter no of values 10

5 \* 1 = 5

5 \* 2 = 10

5 \* 3 = 15

5 \* 4 = 20

5 \* 5 = 25

5 \* 6 = 30

5 \* 7 = 35

5 \* 8 = 40

5 \* 9 = 45

5 \* 10 = 50

PROGRAM CODE:

#prime or composite

n=int(input('enter number '))

for j in range(2,n):

if(n%j==0):

print(n,'is composite')

break

else:

print(n,'is prime')

OUTPUT:

enter number 7

7 is prime

enter number 9

9 is composite

PROGRAM CODE:

#factorial using for loop

n=int(input('enter the number '))

if n==0:

print('the factorial of',n,'is',1)

elif n<1:

print('invalid input')

else:

fact=1

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

fact=fact\*i

print('the factorial of',n,'is',fact)

OUTPUT:

enter the number 5

the factorial of 5 is 120

PROGRAM CODE:

#sum of series

n=int(input('enter no '))

sum=1+1/(n+1)

print('1+',end='')

for i in range(2,n):

print('1/',i,'+',sep='',end='')

sum=sum+(1/i)

print('1/',n,sep='')

print('= ',end='')

for j in range(1,n):

print(1/j,'+',sep='',end='')

print(1/n)

print('=',sum)

OUTPUT:

enter no 5

1+1/2+1/3+1/4+1/5

= 1.0+0.5+0.3333333333333333+0.25+0.2

= 2.25

PROGRAM CODE:

#prime nos in a range

l=int(input('enter lower range '))

u=int(input('enter upper range '))

for i in range(l,u+1):

for j in range(2,i):

if(i%j==0):

break

else:

print(i,'is prime')

OUTPUT:

enter lower range 10

enter upper range 30

11 is prime

13 is prime

17 is prime

19 is prime

23 is prime

29 is prime

PROGRAM CODE:

#star pattern

for i in range(0, 5):

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

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

print()

OUTPUT:

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*