Write a Python program to find the sum of the digits of a given number.

In mathematics, the factorial of a positive integer n, denoted by n!, is the product of all positive integers less than or equal to n

```python
In [5]: def fact(n):
            f=1
            for i in range(1,n+1):
                f*=i
            return f

        def sum(a):
            b=0
            while(a>0):
                b+=(a%10)
                a=a//10
            return b


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

        fac=fact(n)
        s=sum(fac)

        print(f"Factorial of {n} is {fac}")
        print(f"Sum of numbers in the factorial {fac} is {s}")
```

```
Factorial of 5 is 120
Sum of numbers in the factorial 120 is 3
```

Use bitwise operators to check if a given number is a power of 2. Write a function that returns True if the number is a power of 2, otherwise False.

```python
In [ ]: def pwr(n):
            if(n<0): #checking whether zero or not
                return False
            return (n&(n-1)==0) #performing AND operation on the number and the previous
            #result of the bitwise AND operation will be zero


        n=int(input("Enter the number: ")) #input from user and typecasstong to int

        if(pwr): #function call
            print(f"Given number {n} is a power of 2")
        else:
            print(f"Given number {n} is not a power of 2")
```

```
Given number 256 is a power of 2
```

Write a Python program to find the sum of all the positive integers which cannot be written as the sum of two abundant numbers.

In number theory, an abundant number is a number for which the sum of its proper divisors is greater than the number itself.

```python
#
def sum(n): #taking the sum of the divisors
    s=1
    i=2
    while i*i<=n:
        if n%i==0:
            s=s+i
            if i!=n//i:
                s=s+(n//i)
        i=i+1
    return s

def abdt(n): #check if abundant or not
    return sum(n)>n

LIMIT = 28123 #setting upper bound

abd=[]
#generating all abundant numbers upto the limit
for i in range(12,LIMIT+1):
    if abdt(i):
        abd.append(i)

w=[False]*(LIMIT+1) #boolean array to mark sum of two abundant number

for i in range(len(abd)):
    for j in range(i,len(abd)):
        s=abd[i]+abd[j]
        if s <= LIMIT:
            w[s]=True
        else:
            break

total=0
#sum of all the numbers that cannot be written as the sum of two abundant number
for i in range(1, LIMIT + 1):
    if not w[i]:
        total=total+i

print("Sum of all positive integers which cannot be written")
print("as the sum of two abundant numbers:", total)
```

```
Sum of all positive integers which cannot be written
as the sum of two abundant numbers: 4179871
```