Q1. WAP to find the roots of a quadratic equation.

import math

a = int(input("a = "))

b = int(input("b = "))

c = int(input("c = "))

discriminant = b \*\* 2 - 4 \* a \* c

if discriminant > 0:

    discriminantSqrt = math.sqrt(discriminant)

    firstRoot = (-b + discriminantSqrt) / (2 \* a)

    secondRoot = (-b - discriminantSqrt) / (2 \* a)

    print(firstRoot, secondRoot)

elif discriminant == 0:

    discriminantSqrt = math.sqrt(discriminant)

    root = (-b + discriminantSqrt) / (2 \* a)

    print(root)

else:

    print("Quadratic Equation has complex roots")

Q2. WAP to accept a number ‘n’ to compute the following:

1. Check if ‘n’ is prime
2. Generate all prime numbers till ‘n’
3. Generate first ‘n’ prime numbers
4. Calculate the sum of first ‘n’ natural numbers

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

#1. Check if 'n' is prime

if n == 2:

    print("'n' is prime.")

elif n%2 == 0:

    print("'n' is not prime")

else:

    divisor = 3

    isPrime = True

    while (divisor <= n/2):

        if (n % divisor == 0):

            isPrime = False

            break

        divisor+=2

    if (isPrime):

        print("'n' is prime.")

    else:

        print("'n' is not prime.")

#2. Generate all prime numbers till 'n'

print("Prime numbers till 'n'")

print(2)

number = 2

while(number <= n):

    number+=1

    if number%2==0:

        continue

    else:

        divisor = 3

        isPrime = True

        while (divisor <= number/2):

            if (number % divisor == 0):

                isPrime = False

                break

            divisor+=2

        if(isPrime):

            print(number)

#3. Generate first 'n' prime numbers

print("First 'n' prime numbers")

print(2)

number = 2

count = 1

while (count < n):

    number+=1

    if (number%2 == 0):

        continue

    else:

        divisor = 3

        isPrime = True

        while (divisor <= number/2):

            if (number % divisor == 0):

                isPrime = False

                break

            divisor+=2

        if(isPrime):

            print(number)

            count+=1

#4. Calculate sum of first 'n' natural numbers

print("Sum of first 'n' natural numbers")

number = 1

sum = 0

for i in range(n):

    sum+=number

    number+=1

print(sum)