**ADITYA AMIN**

**ASSIGN : 20**

Question1

Create a function that takes a list of strings and integers, and filters out the list so that it returns a list of integers only.

**Examples**

filter\_list([1, 2, 3, "a", "b", 4]) ➞ [1, 2, 3, 4]

filter\_list(["A", 0, "Edabit", 1729, "Python", "1729"]) ➞ [0, 1729]

filter\_list(["Nothing", "here"]) ➞ []

def filter\_list(lst):

return [i for i in lst if isinstance(i, int)]

print(filter\_list([1, 2, 3, "a", "b", 4])) # Output: [1, 2, 3, 4]

print(filter\_list(["A", 0, "Edabit", 1729, "Python", "1729"])) # Output: [0, 1729]

print(filter\_list(["Nothing", "here"])) # Output: []

Question2

Given a list of numbers, create a function which returns the list but with **each element's index in the list added to itself**. This means you add 0 to the number at index 0, add 1 to the number at index 1, etc...

### Examples

add\_indexes([0, 0, 0, 0, 0]) ➞ [0, 1, 2, 3, 4]

add\_indexes([1, 2, 3, 4, 5]) ➞ [1, 3, 5, 7, 9]

add\_indexes([5, 4, 3, 2, 1]) ➞ [5, 5, 5, 5, 5]

def add\_indexes(lst):

return [i+lst[i] for i in range(len(lst))]

print(add\_indexes([0, 0, 0, 0, 0])) # Output: [0, 1, 2, 3, 4]

print(add\_indexes([1, 2, 3, 4, 5])) # Output: [1, 3, 5, 7, 9]

print(add\_indexes([5, 4, 3, 2, 1])) # Output: [5, 5, 5, 5, 5]

Question3

Create a function that takes the height and radius of a cone as arguments and returns the volume of the cone rounded to the nearest hundredth. See the resources tab for the formula.



### Examples

cone\_volume(3, 2) ➞ 12.57

cone\_volume(15, 6) ➞ 565.49

cone\_volume(18, 0) ➞ 0

import math

def cone\_volume(height, radius):

volume = math.pi \* radius\*\*2 \* height / 3

return round(volume, 2)

print(cone\_volume(3, 2)) # Output: 12.57

print(cone\_volume(15, 6)) # Output: 565.49

print(cone\_volume(18, 0)) # Output: 0.0

Question4

This Triangular Number Sequence is generated from a pattern of dots that form a triangle. The first 5 numbers of the sequence, or dots, are:

1, 3, 6, 10, 15

This means that the first triangle has just one dot, the second one has three dots, the third one has 6 dots and so on.

Write a function that gives the number of dots with its corresponding triangle number of the sequence.

### Examples

triangle(1) ➞ 1

triangle(6) ➞ 21

triangle(215) ➞ 23220

def triangle(n):

return (n \* (n + 1)) // 2

def dots\_in\_triangle(n):

return triangle(n)

>>> dots\_in\_triangle(1)

1

>>> dots\_in\_triangle(6)

21

>>> dots\_in\_triangle(215)

23220

Question5

Create a function that takes a list of numbers between 1 and 10 (excluding one number) and returns the missing number.

### Examples

missing\_num([1, 2, 3, 4, 6, 7, 8, 9, 10]) ➞ 5

missing\_num([7, 2, 3, 6, 5, 9, 1, 4, 8]) ➞ 10

missing\_num([10, 5, 1, 2, 4, 6, 8, 3, 9]) ➞ 7

def missing\_num(lst):

n = len(lst) + 1

total = n \* (n + 1) // 2

return total - sum(lst)

>>> missing\_num([1, 2, 3, 4, 6, 7, 8, 9, 10])

5

>>> missing\_num([7, 2, 3, 6, 5, 9, 1, 4, 8])

10

>>> missing\_num([10, 5, 1, 2, 4, 6, 8, 3, 9])

7