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"]) ➞ []

Ans1

def filter\_list(lst):

return [x for x in lst if isinstance(x, 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&#39;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]

Ans2

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

Ans3

import math

def cone\_volume(h, r):

return round((1/3)\*math.pi\*r\*\*2\*h, 2)

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

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

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

Ans4

def triangle(n):

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

print(triangle(1)) # Output: 1

print(triangle(6)) # Output: 21

print(triangle(215)) # Output: 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

Ans5

def missing\_num(lst):

return set(range(1,11)).difference(set(lst)).pop()

print(missing\_num([1, 2, 3, 4, 6, 7, 8, 9, 10])) # Output: 5

print(missing\_num([7, 2, 3, 6, 5, 9, 1, 4, 8])) # Output: 10

print(missing\_num([10, 5, 1, 2, 4, 6, 8, 3, 9])) # Output: 7