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"]) ➞ []

ANS: def filter\_list(lst):

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

# Test cases

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]

ANS: def add\_indexes(lst):

return [num + index for index, num in enumerate(lst)]

# Test cases

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

ANS: import math

def cone\_volume(h, r):

volume = (math.pi \* r\*\*2 \* h) / 3

return round(volume, 2)

# Test cases

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

ANS: def triangle(n):

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

# Test cases

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

ANS: def missing\_num(lst):

return sum(range(1, 11)) - sum(lst)

# Test cases

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