Basic Programming assignment 20

1.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"]) ➞ []

In [1]:
```
def filter_list(in_list):
    out_list = []
    for ele in in_list:
        if type(ele) == int:
            out_list.append(ele)
    print(f'Output → {out_list}')

filter_list([1, 2, 3, "a", "b", 4])
filter_list(["A", 0, "Edabit", 1729, "Python", "1729"])
filter_list(["Nothing", "here"])
```

```
Output → [1, 2, 3, 4]
Output → [0, 1729]
Output → []
```

2.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]

In [2]:
```
 def add_indexes(in_list):
    out_list = []
    for ele in range(len(in_list)):
        out_list.append(ele+in_list[ele])
    print(f'{in_list} → {out_list}')

add_indexes([0, 0, 0, 0, 0])
add_indexes([1, 2, 3, 4, 5])
add_indexes([5, 4, 3, 2, 1])
```

```
[0, 0, 0, 0, 0] → [0, 1, 2, 3, 4]
[1, 2, 3, 4, 5] → [1, 3, 5, 7, 9]
[5, 4, 3, 2, 1] → [5, 5, 5, 5, 5]
```

3.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

In [3]:
```
import math

def cube_volume(height, radius):
    output = ((math.pi)*pow(radius,2))*(height/3)
    print(f'Output → {output:.2f}')

cube_volume(3,2)
cube_volume(15,6)
cube_volume(18,0)
```

```
Output → 12.57
Output → 565.49
Output → 0.00
```

4.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

In [4]:
```python
def triangle(in_num):
    print(f'Output ➞ {int((in_num)*((in_num+1)/2))}')

triangle(1)
triangle(6)
triangle(215)
```

```
Output ➞ 1
Output ➞ 21
Output ➞ 23220
```

5.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

In [5]:
```python
def missing_num(in_list):
    for i in range(1,11):
        if i not in in_list:
            print(f'{in_list} ➞ {i}')

missing_num([1, 2, 3, 4, 6, 7, 8, 9, 10])
missing_num([7, 2, 3, 6, 5, 9, 1, 4, 8])
missing_num([10, 5, 1, 2, 4, 6, 8, 3, 9])
```

```
[1, 2, 3, 4, 6, 7, 8, 9, 10] ➞ 5
[7, 2, 3, 6, 5, 9, 1, 4, 8] ➞ 10
[10, 5, 1, 2, 4, 6, 8, 3, 9] ➞ 7
```