Assignment 20 Solutions

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]:

```python
def filter_list(lst):
    intLst = []
    for i in lst:
        if type(i) == int:
            intLst.append(i)
    return intLst
print(filter_list([1, 2, 3, "a", "b", 4]))
print(filter_list(["A", 0, "Edabit", 1729, "Python", "1729"]))
print(filter_list(["Nothing", "here"]))
```

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

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 [3]:

```
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 [4]:

```
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 [5]:

```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 [7]:

```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
```