195109221

1 a)

In [1]:

```
import math

print(math.sin(math.pi/3)) #pi/3 radians is converted to 60 degrees
print(math.tan(math.pi/3))
print(math.cos(math.pi/6))
```

```
0.8660254037844386
1.7320508075688767
0.8660254037844387
```

b)

In [5]:

```
def sum (num):
    return num % 50
num=lambda a,b:a+b
print(num(34,16))
```

```
50
```

c)

In [ ]:

```
num=5
if num <0:
    print ("enter a positive number")
else:
        sum=0
        while(num > 0):
            sum+=num
            num =1
            print("the sum of first 5 natural numbers is",sum)
```

```
the sum of first 5 natural numbers is 5
the sum of first 5 natural numbers is 6
the sum of first 5 natural numbers is 7
the sum of first 5 natural numbers is 8
the sum of first 5 natural numbers is 9
the sum of first 5 natural numbers is 10
the sum of first 5 natural numbers is 11
the sum of first 5 natural numbers is 12
the sum of first 5 natural numbers is 13
the sum of first 5 natural numbers is 14
the sum of first 5 natural numbers is 15
the sum of first 5 natural numbers is 16
the sum of first 5 natural numbers is 17
the sum of first 5 natural numbers is 18
the sum of first 5 natural numbers is 19
the sum of first 5 natural numbers is 20
the sum of first 5 natural numbers is 21
the sum of first 5 natural numbers is 22
the sum of first 5 natural numbers is 23
```

2 a)

In [1]:

```
import math
list_1 = [6.1, 7.2, 3.3, 9.4, 10.6, 15.7]
print("The original list is : " + str(list_1))
sum = 0
for ele in list_1:
  sum += ele
res = sum / len(list_1)

print("The mean of float list elements is : " + str(res))
```

```
The original list is : [6.1, 7.2, 3.3, 9.4, 10.6, 15.7]
The mean of float list elements is : 8.716666666666667
```

b)

In [5]:

```
def function(first_name,last_name):
    print(first_name+""+last_name)
function("Hariharan","gunasekaran")
```

```
Hariharangunasekaran
```

4)

In [132]:

```
with open("myfile.txt", "w") as myfile:
    myfile.write("My first file written from python\n")
    myfile.write("Hello,world!\n")

def show(myfile):
    with open(myfile) as f:
        content = f.read()
        print(content)
show('myfile.txt')
```

```
My first file written from python
Hello,world!
```

In [133]:

```
with open("myfile.txt", "r") as my_new_handle:
    for line in my_new_handle:
        count+=1
print(line, end="")
print('This file contains ',count,' lines')
```

```
Hello,world!
This file contains  5  lines
```

In [127]:

```
my_file=open("myfile.txt", "r")
print(my_file.read())
my_file.close()
```

```
My first file written from python
Hello,world!
```

5 a)

In [26]:

```
import re
def text_match(text):
    patterns = 'ab{2,3}'
    if re.search(patterns, text):
        return 'found a match!'
    else:
        return('Not matched!')
print(text_match("ab"))
print(text_match("aabbbbc"))
```

```
Not matched!
found a match!
```

b)

In [16]:

```
import re
def text_match(text):
    patterns= '^[a-z]+_[a-z]+$'
    if re.search(patterns, text):
         return 'Found a match!'
    else:
        return('Not matched!')
print(text_match("aab_cbbbc"))
print(text_match("aab_Abbbc"))
print(text_match("Aaab_abbbc"))
```

```
Found a match!
Not matched!
Not matched!
```

c)

In [32]:

```
import re
patterns = ['fox','dog','horse']
text = 'The quick brown fox jumps over the lazy dog.'
for pattern in patterns:
    print('searching for "%s" in "%s" ->' %(pattern, text),)
    if re.search(pattern, text):
        print('Matched!')
else:
    print('Not Matched!')
```

```
searching for "fox" in "The quick brown fox jumps over the lazy dog." ->
Matched!
searching for "dog" in "The quick brown fox jumps over the lazy dog." ->
Matched!
searching for "horse" in "The quick brown fox jumps over the lazy dog." ->
Not Matched!
```