In [1]:

```
a = 0.1
for i in range(9):
    a = a + 0.1
print(a)
```

```
0.9999999999999999
```

In [3]:

```
n = 1000
h = 1/n
a = 0
for i in range(n):
    a = a + h
print(a)
a = 0
for i in range(3*n):
    a = a + h
print(a)
a = 0
for i in range(7*n):
    a = a + h
print(a)
```

```
1.0000000000000007
2.9999999999997806
7.000000000000672
```

In [4]:

```
if 1/3 * 3 == 3:
    print("equal")
else:
    print("not equal")
```

```
not equal
```

Цикл с одновременным изменением нескльникх парметров

Вычислить таблицу значений функции a * sin(b[k]). A - простая переменная. B - спикок. Меняются они синхронно

In [7]:

```
from math import sin
a = float(input("input varialble: "))
b = []
b = list(map(float, input("input list: ").split()))
print("k     a       b        y")
for k in range (len(b)):
    a = 0.1 * k
    y = a * sin(b[k])
    print("{:2d}{:6.1f}{:9.4f}{:14.8f}".format(k, a, b[k], y))
```

```
input varialble: 5
input list: 1 2 3
k     a       b        y
 0   0.0   1.0000    0.00000000
 1   0.1   2.0000    0.09092974
 2   0.2   3.0000    0.02822400
```

In [11]:

```
from math import sin, pi
print("{:14.3e}{:14.3e}{:14.3e}{:14.3e}".format(sin(3.14), \
      sin(3.14159), sin(3.1419265), sin(pi)))
```

```
     1.593e-03     2.654e-06    -3.338e-04     1.225e-16
```

Вывод списков по несколько чисел в одной строке

In [13]:

```
a = []
for i in range(int(input())):
    a.append(int(input()))
print(a)
for i in range(len(a)):
    if (i + 1) % 3 == 0:
        print(a[i])
    else:
        print(a[i], end=" ")
print("\n")
```

```
5
1
2
3
4
5
[1, 2, 3, 4, 5]
1 2 3
4 5
```

In [14]:

```
for i in range(len(a)):
    print(a[i], end=" ")
    if (i + 1) % 2 == 0:
        print()
print("\n")
```

```
1 2
3 4
5
```

Списки нецелессобразно выводить по одному в строке

In [16]:

```
for i in range(len(a)):
    print(a[i])
```

```
1
2
3
4
5
```

In [17]:

```
for r in a:
    print(r, end=" ")
print()
```

```
1 2 3 4 5
```

In [19]:

```
# пример с ошибкой
x = [1, 4, 9, 3, 2]
r = 8
k = 0
while x[k] != r:
    k += 1
    print("x[", k, "]= ", r, sep = "")
```

```
x[1]= 8
x[2]= 8
x[3]= 8
```

```
x[3]= 8
x[4]= 8
x[5]= 8
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
<ipython-input-19-e3b6b255b91c> in <module>()
      3 r = 8
      4 k = 0
----> 5 while x[k] != r:
      6     k += 1
      7     print("x[", k, "]= ", r, sep = "")

IndexError: list index out of range
```

In [22]:

```
x = [1, 4, 9, 3, 2]
r = 3
l = 0
n = len(x)
while k < n and x[k] != r:
    k += 1
if k < n:
    print(k)
else:
    print("no element")
```

```
no element
```

In [23]:

```
x = [1, 4, 9, 3, 2]
r = 2
x.append(r)
while x[k] != r:
    k += 1
if k == len(x) - 1:
    print("no")
else:
    print("yes")
```

```
no
```

In [25]:

```
x = [1, 4, 9, 3, 2]
r = 9
nom = -1
for k in range(len(x)):
    if x[k] == r:
        nom = k
        break
if nom >= 0:
    print(nom)
else:
    print("нет элемент")
```

```
2
```

In [26]:

```
x = [1, 4, 9, 3, 2]
r = 9
for k in range(len(x)):
    if x[k] == r:
        print(k)
        break
else:
    print("no element")
```

```
2
```

In [27]:

```
r = 8
x = [1, 4, 9, 3, 2]
if r in x:
    nom = x.index(r)
    print(nom)
else:
    print("no element")
```

```
no element
```

In [29]:

```
# бинарный поиск элемента в упорядоченном массиве
l = 0
a = [1, 2, 3, 4, 9]
x = 4
n = len(a)
l = 0; r = n
while l < r-1:
    t = (l + r) // 2
    if x < a[t]:
        r = t
    else:
        l = t
if a[l] == x:
    print("a[", l, "]= ", x, sep="")
```

```
a[3]= 4
```