EXERCISES:

FUNCTIONS:

INTRODUCTION

Exercise(s):

- an arithmetic progression $A(a, d)$ is a sequence of numbers:

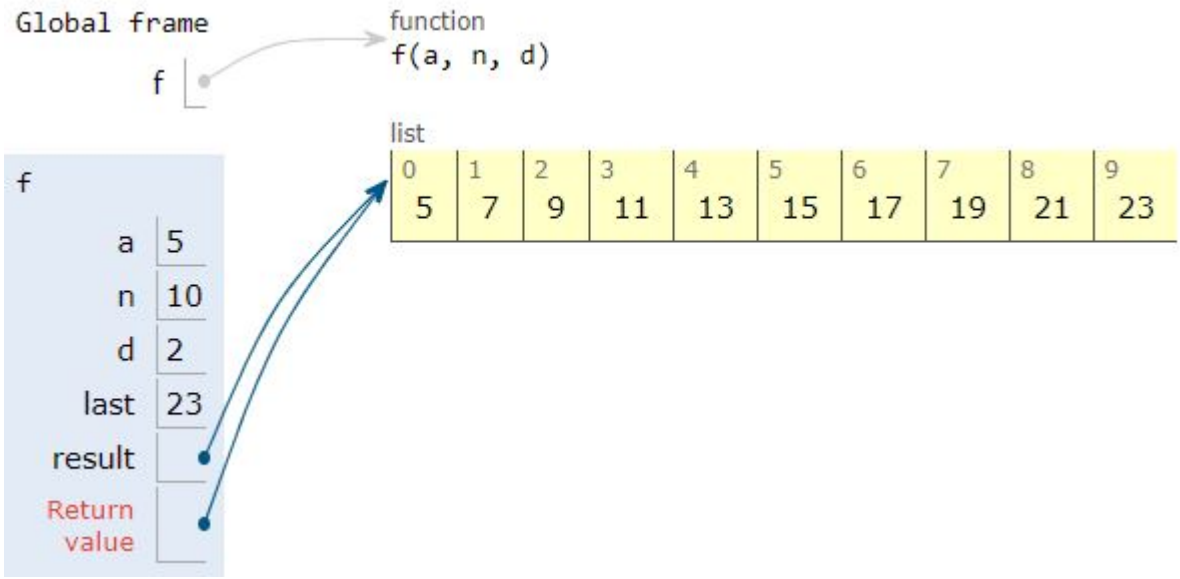
$$x_1 = a$$
$$x_2 = x_1 + d = a + d$$
$$\ldots\ldots$$
$$x_n = x_{n-1} + d = a + (n-1)d$$

- write a function $f(a, d, n)$ to return a list of first n values in $A(a, d)$
- generate a list of first 10 values for $a = 5$ and $d = 2$

Solution:

```
def f(a,d,n):
    """ list of first n elements in arithmetic
        progression with start a and step d """
    last = a + (n-1)*d
    result = list(range(a, last+1, d))
    return result

x_list = f(n=10, a=5, d=2)
```



- a geometric progression $G(b, q)$ is a sequence of numbers:

$$y_1 = b$$
$$y_2 = y_1 \cdot q = b \cdot q$$
$$\ldots\ldots$$
$$y_n = y_{n-1} \cdot q = b \cdot q^{n-1}$$

- write a function $g(b, q, n)$ to return a list of first n values in $G(b, q)$
- generate a list of first 10 values for $b = 5$ and $d = 2$

Solution:

```
def g(b,q,n):
    """ list of first n elements in geometric
    progression with start b and factor d """
    result = [b*q**(i-1) for i in range(1, n+1)]
    return result

y_list = g(n=10, b=5, q=2)
```