Ejercicios de Python

1 Ejercicios.

1. Write a function to read a list of numbers giving as a result the cumulative sum, i.e. a list where each element *i* of the list is the sum of f *i* first element of the original list.
2. Write a function called 'chop' which takes a list and remove the first and last element, but return nothing.
3. Write a function called 'middle' which takes a list and give back a new list cotaining all elements except the first and last.
4. Shows all numbers power of two less than 10000 as in this way:

```
0001
0002
0004
0008
...
8192
```

5. Find and show the sum of all multiples of 3 or 5 less than 1000 (this number is 233168)
6. Print a random number between 1 and 20 and calculate if that number has 1 or 2 digits.
7. Asign to a variable an integer number between 1 and 100. In a loop, create a random number also between 1 and 100. Stop the loop if the random number matchs the value of the first variable and show a message.
8. Create a random number betwee 1 and 1000. Print a message showing the number of digits.
9. Create 3 random numbers between 1 and 100. Shows a message if all of them are higher than 10.
10. Create a random number between 100 and 200. Shows all numbers between 1 and the random number.
11. Create a function which takes an integer and prints the multiples of that number (for example, if takes 3 it must show all the multiples up to 30)
12. Write a function which takes three integers and shows the sum of only the two higher ones.
13. Create a tuple with 10 ages. Print the number of persons with ages larger than 20.
14. Create a list with 10 ages. Erase all the ages smaller than 18.
15. Plot the following functions:

$$1)\ \ f(x) = ae^{-\frac{(x-x_0)^2}{2c^2}} \quad ; \quad 2)\ \ f(x) = \frac{b}{(x-x_0)^2 + b^2}$$

Using values a=2.0, x0 = 10.0, c=5.0, and b=0.5, within x-interval [-50,+50]. Check how affect to the plots differents values of c and b.