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Bordeaux
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Luxembourg
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Strasbourg
Augsbourg
Munich
Salzbourg
Zurich
Liechtenstein
Suisse
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Florence
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Cannes
Marseille
Montpellier
Toulouse
Andorre
Santander
Bilbao
Saint-Sébastien
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Valladolid
Google

Thanks John !


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France
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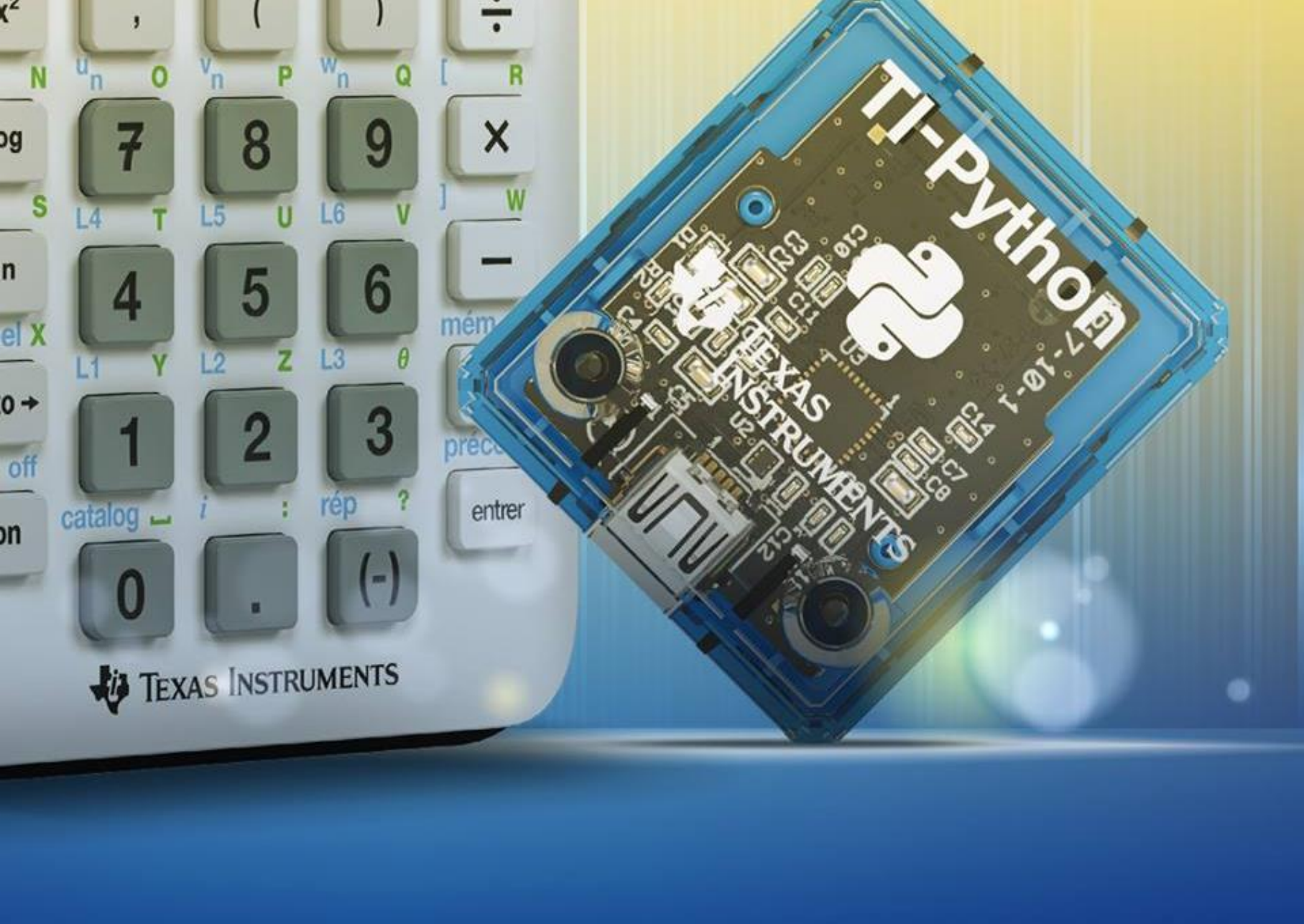
Perth
Adelaide
Sydney
Melbourne


TI-Python
TEXAS INSTRUMENTS
7 8 9
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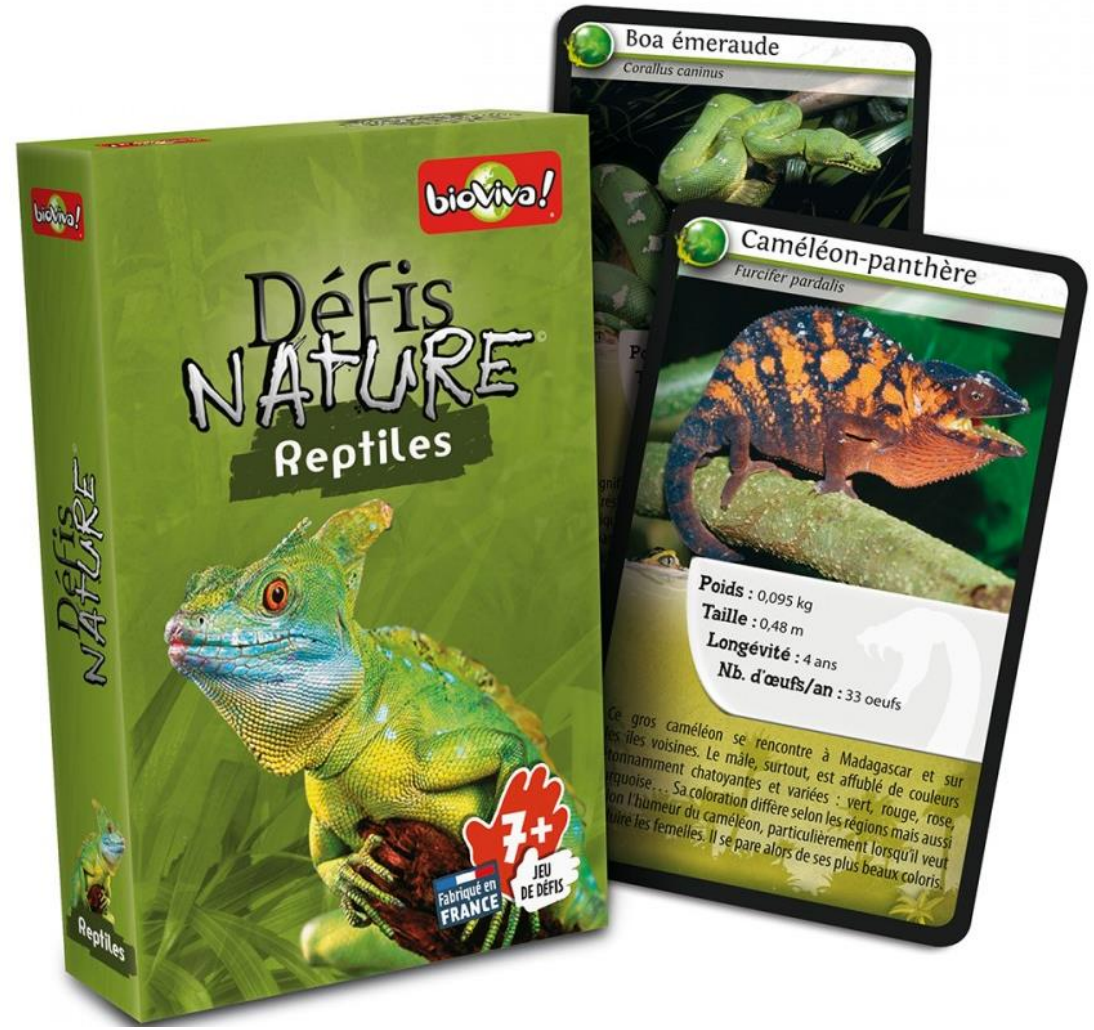
TEXAS INSTRUMENTS

What is Python ?



What is Python ?

Guido van Rossum

- ✓ Born in 1991
- ✓ Completely free, complete and powerful language in many fields
- ✓ Syntax remains very simple and very readable
- ✓ Allows a modular and object-oriented approach to programming
- ✓ Learning object programming, system administration scripts or text file analysis, Web, realization of graphical user interfaces, scientific computing

What is Python ?

Google python

Tous Images Actualités Vidéos Shopping Plus Paramètres Outils

Environ 468 000 000 résultats (0,46 secondes)

Welcome to Python.org
https://www.python.org/ ▾ Traduire cette page
The official home of the **Python** Programming Language.

Rechercher sur python.org

Download Python
Python 3.7.2 - Windows - Python 3.7.0 - Python 3.5.0 - Python 2.7.15

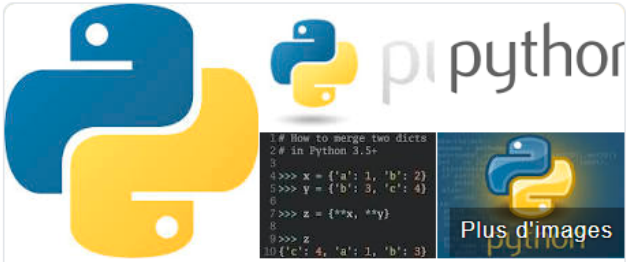
Python For Beginners
BeginnersGuide - BeginnersGuide/Download - IDEs - Python Editors

Python 3.7.2
Python 3.7.2 is the second maintenance release of Python ...

Windows
Note that Python 3.5.5 cannot be used on Windows XP or earlier ...

Python (langage) — Wikipédia
https://fr.wikipedia.org/wiki/Python_(langage) ▾
Python est un langage de programmation interprété, multi-paradigme et multiplateformes. Il favorise la programmation impérative structurée, fonctionnelle et ...

Typage: Fort, dynamique, duck typing
Extension de fichier: py, pyc, pyd, pyo et pyw
Auteur: Guido van Rossum
Développeurs: Python Software Foundation



Python
Langage de programmation

Python est un langage de programmation interprété, multi-paradigme et multiplateformes. Il favorise la programmation impérative structurée, fonctionnelle et orientée objet. Wikipédia

Conçu Par : Guido van Rossum

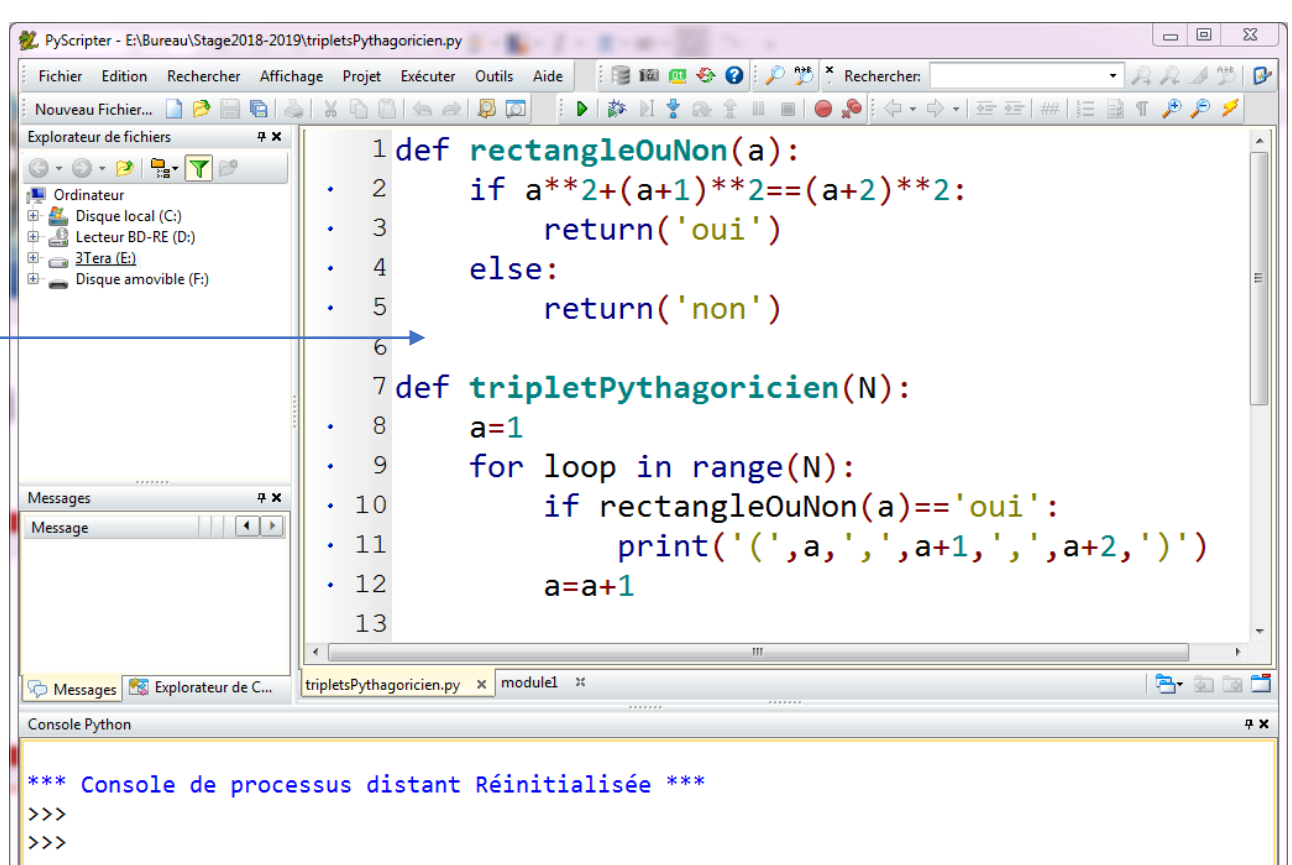
Date de première version : le 20 février 1991, il y a 27 ans

Dernière version : 2.7.15 (1er mai 2018); 3.7.2 (24 décembre 2018)

Software

Script editor

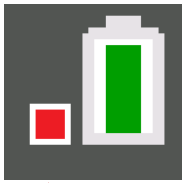
Shell



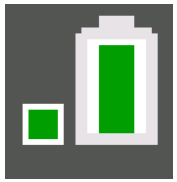
TI-Python adapter

https://education.ti.com/fr/product-resources/python-for-ti-83-premium-ce

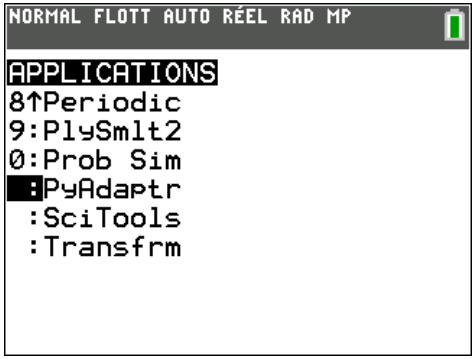
TI-Python adapter

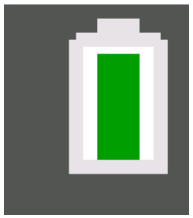


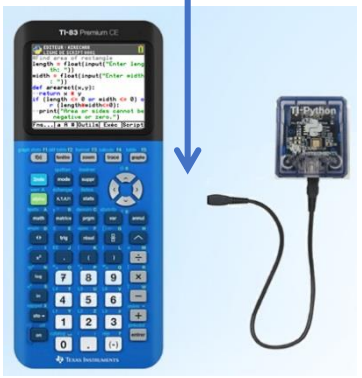
Please wait...



connected







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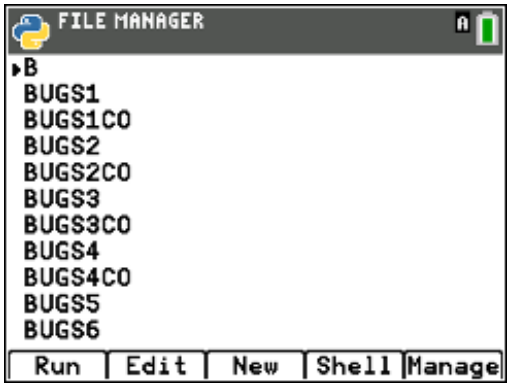
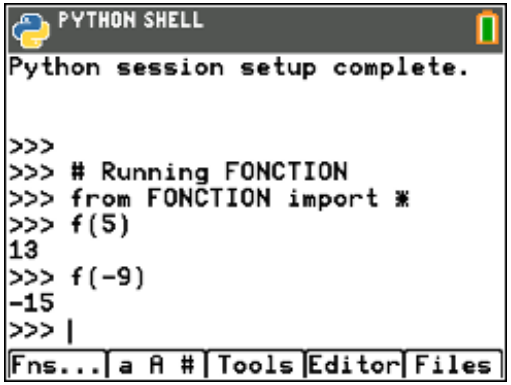
TI-Python app

File manager

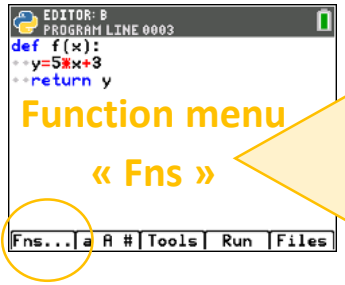


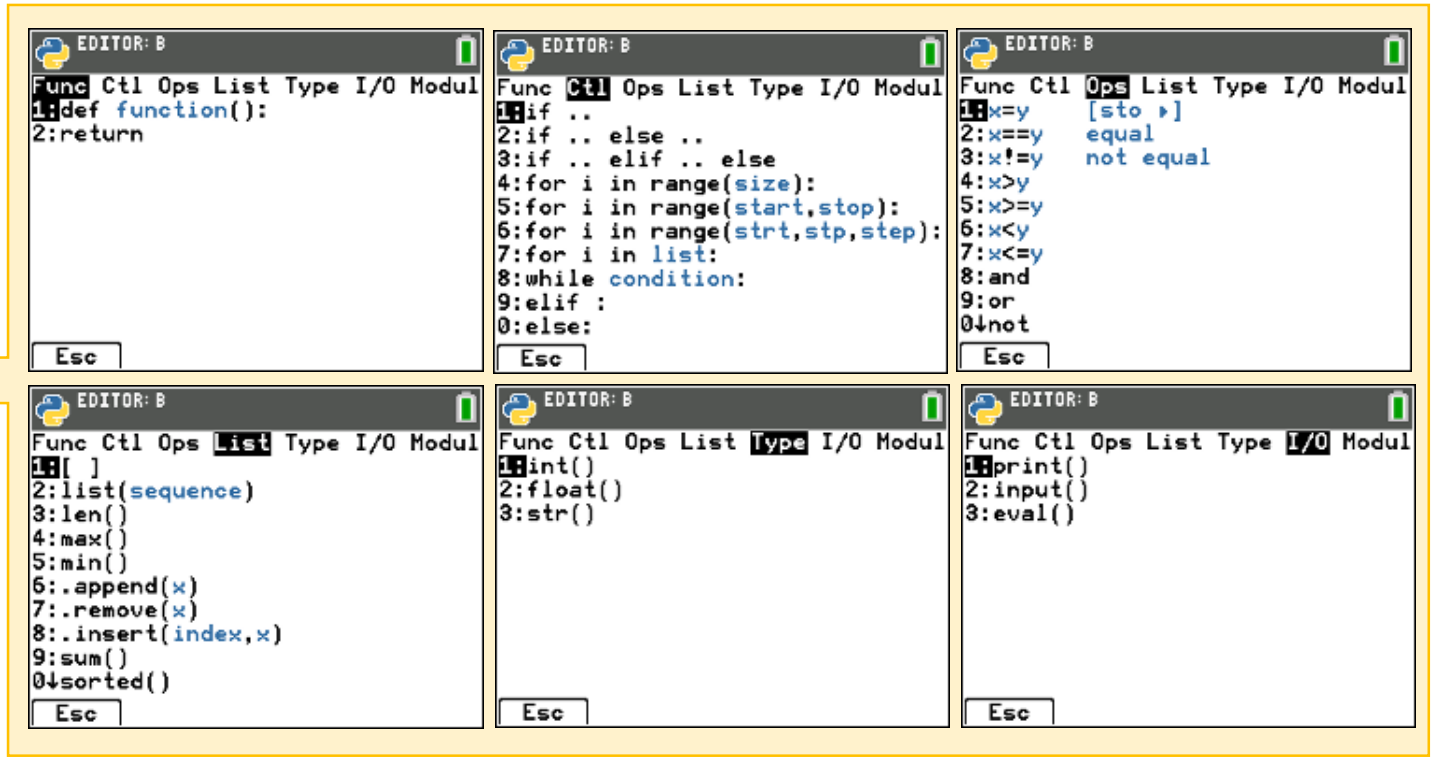
Editor

Shell



TI-Python app

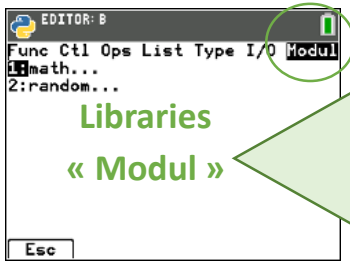


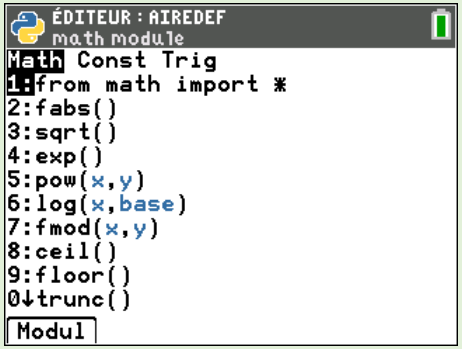


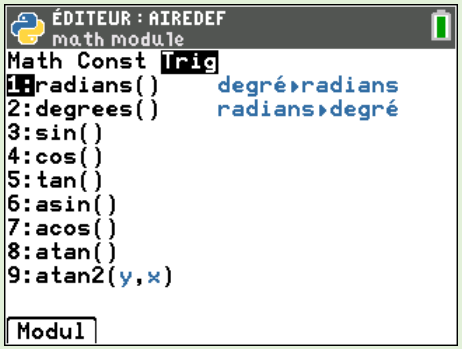
Function menu

TI-Python app

Maths library







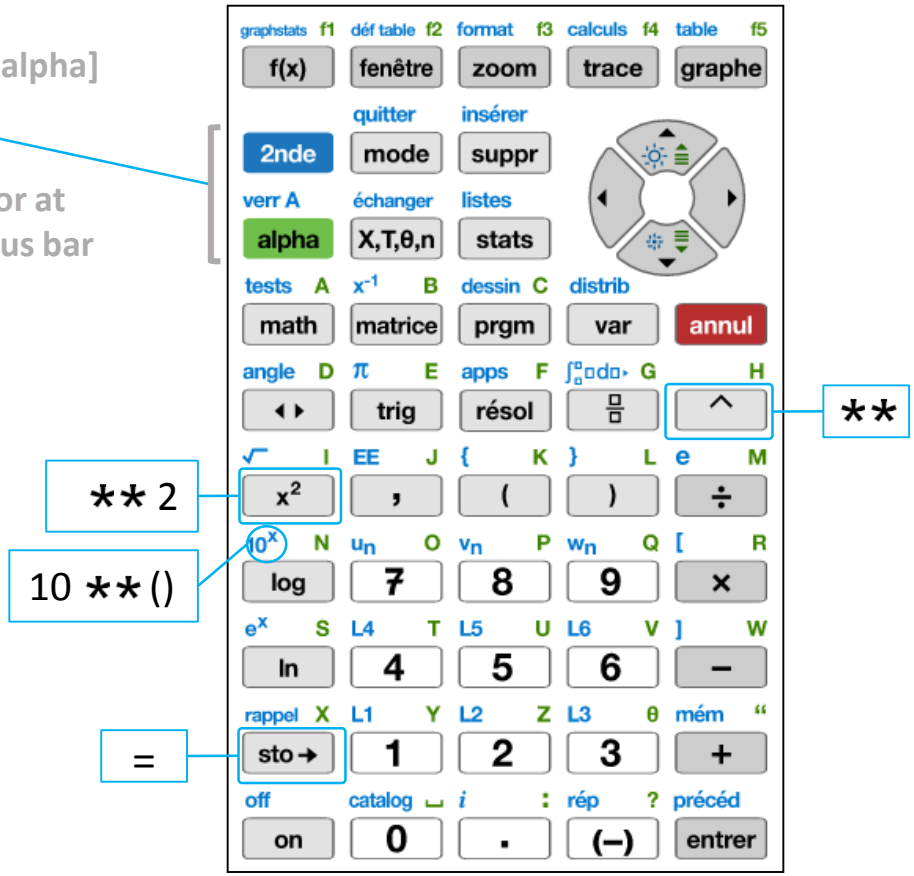
Random library

« Modul » tab

TI-Python app

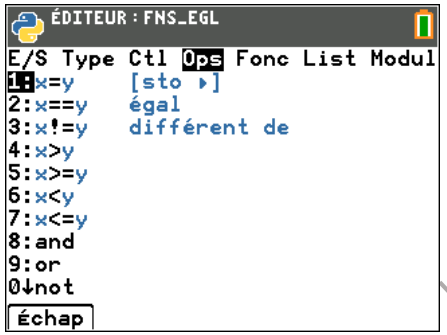
[2nde][alpha] & [alpha]

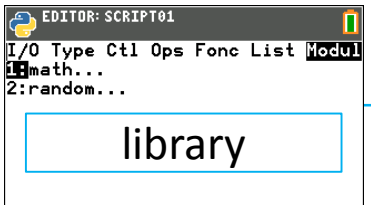
- abcde...
- ABCD...
- alpha indicator at cursor or status bar



shortcuts

TI-Python app





library

pi

sqrt()

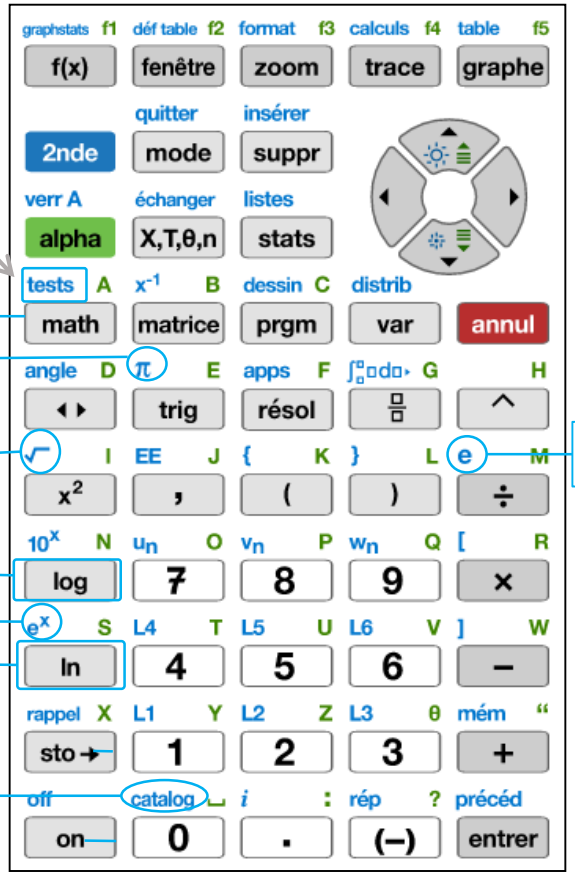
log(x,10)

exp()

log(x)

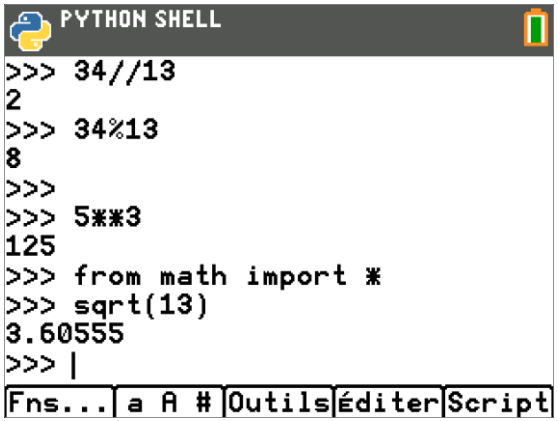
all instructions

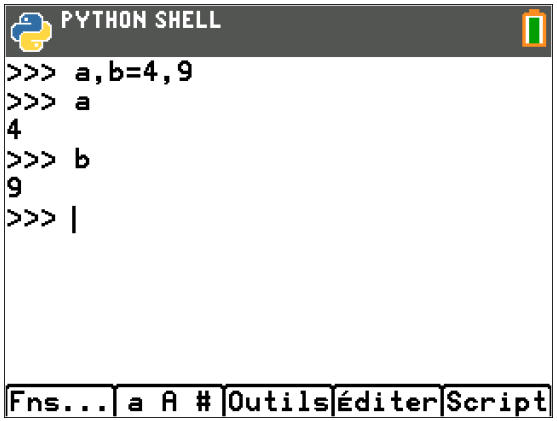
e

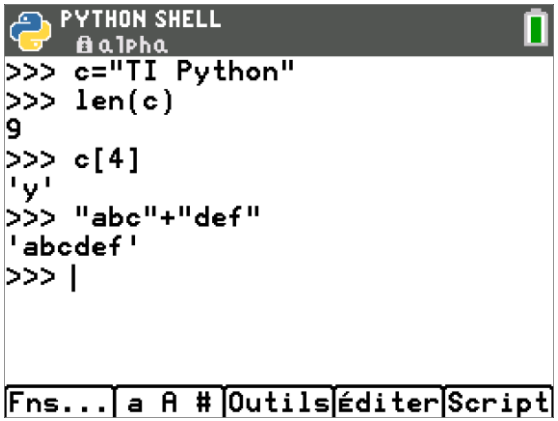


shortcuts

TI-Python app



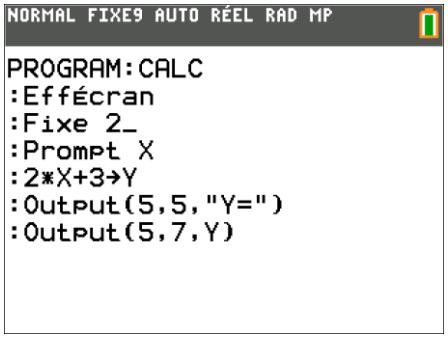


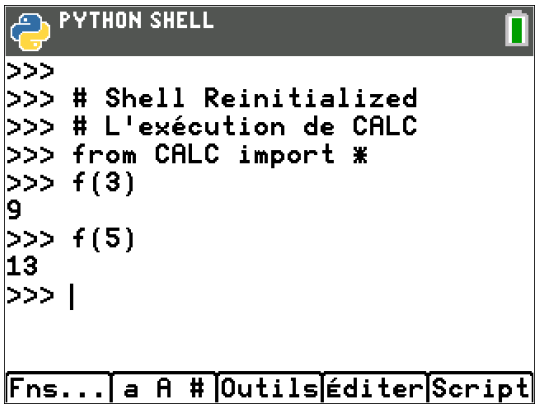


Shell

Functions

- ✓ Use « return » not « print »
- ✓ The two points starts instructions
- ✓ Indent is automatic and necessary





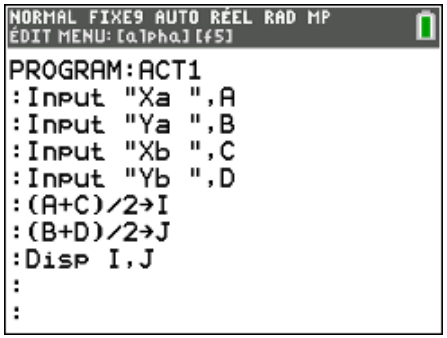
- ✓ In the shell  will copy last line
- ✓ In the shell, you can call a function with 

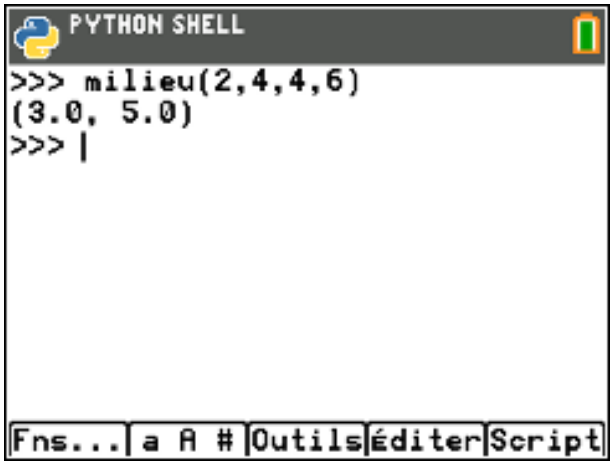
A function is a way to avoid rehearsal

Functions

Exercise 1

Rewrite this algorithm as concisely as possible using a function.





A function is a way to avoid rehearsal

Functions

Find the smallest integer n such as $c_n \leq 1$ with $c_0 = 3,4$ et $c_{n+1} = 0,8$

$n \leftarrow 0$

$C \leftarrow 3,4$

While $C \geq 1$

$n \leftarrow n+1$

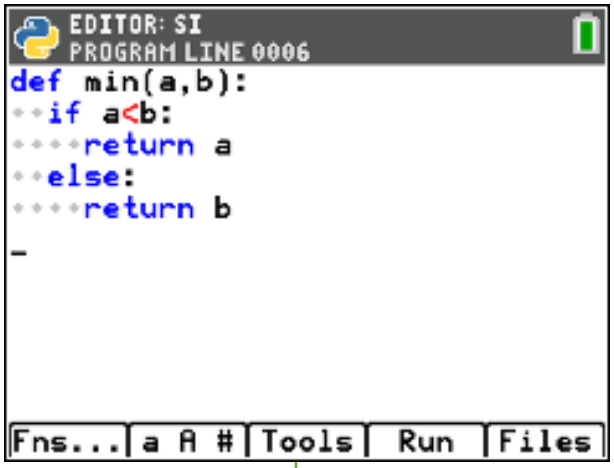
$C \leftarrow 0,8 \times C$

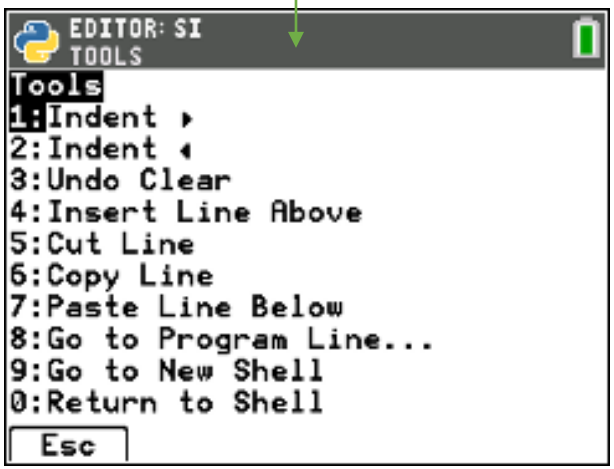
```
NORMAL FIXE2 AUTO RÉEL RAD MP
ÉDIT MENU: [alpha] [f5]
PROGRAM:SEUIL
:Effécran
:0→N
:3.4→C
:While C≥1
:1+N→N
:0.8*C→C
:End
:Disp "N=",N
```

```
EDITOR: SEUIL
PROGRAM LINE 0007
def annee(c0,seuil):
  n=0
  c=c0
  while c>=seuil:
    n=n+1
    c=0.8*c
  return n
Fns... | a A # | Tools | Run | Files
```

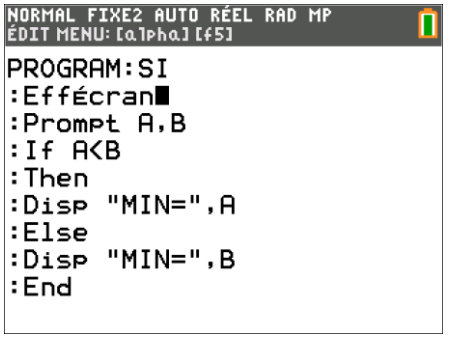
A function is a way to avoid rehearsal

Conditional statement





- ✓ « Then » doesn't exist in Python. Indent replace it.
- ✓ Indent close the instruction,



- ✓ Tools menu contains lots options like copy/paste or indent

Conditional statement

Exercise 2

A photo printing website offers prints at 0.11€ each. The price is reduced to 0.08€ each for orders of more than 200 photos.

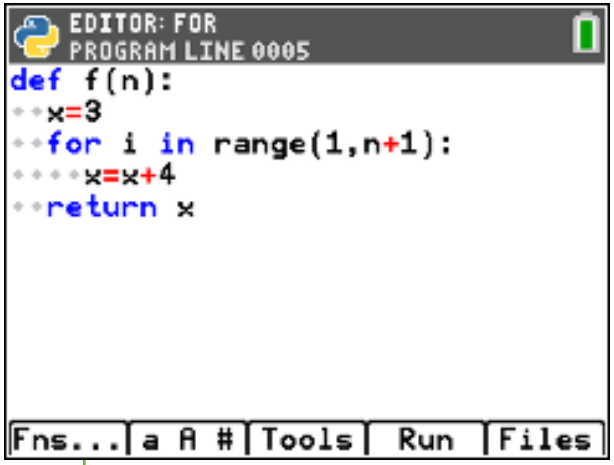
Create an algorithm which gives the total price for a number *n* of prints.

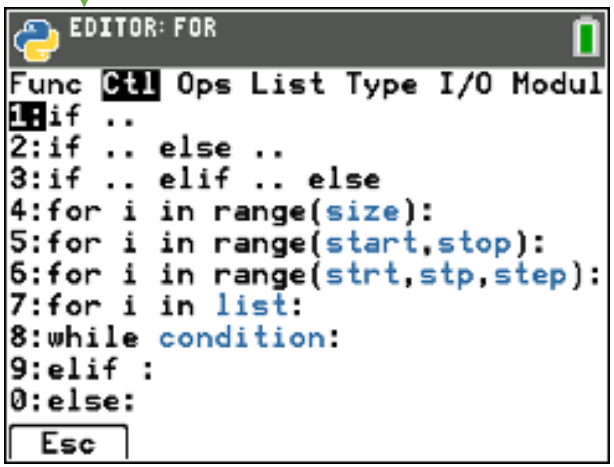
```
NORMAL FIX9 AUTO REAL RADIAN MP
EDIT MENU: [alpha] [f5]
PROGRAM:ACT2
:Input "Number ",N
:If N<200
:Then
:0.11*N→M
:Else
:0.08*N→M
:End
:Disp M
:
```

```
EDITOR: SITE
PROGRAM LINE 0006
def photo(n):
  if n<200:
    M=0.11*n
  else:
    M=0.08*n
  return M_
Fns... | a A # | Tools | Run | Files
```

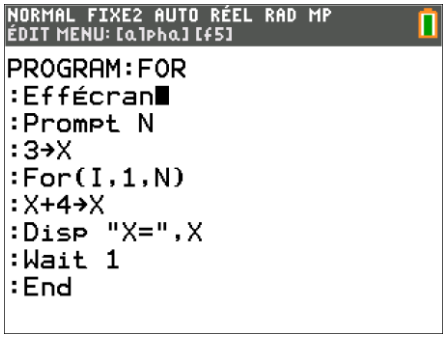
```
PYTHON SHELL
>>> photo(165)
18.15
>>> photo(314)
25.12
>>> |
Fns... | a A # | Outils | Éditer | Script
```

Closed loop





- ✓ Range (a,b) do the loop for a ≤ n < b
- ✓ Range(n+1) are integers from 0 to n
- ✓ Indent start instructions



- ✓ 4 choices

Take care of the length of the interval

Closed loop

Exercise 3

The population of a village is 2300 today. As the village is growing, its population increases each year by 150 inahbitants.
Design an algorithm which gives the number of inhabitants of this village in *n* years from today.

```
NORMAL FIXE2 AUTO RÉEL RAD MP
ÉDIT MENU: [alpha] [f5]
PROGRAM:ACT3
:Effécran
:Input "Population ? ",N
:2300→P
:For(I,1,N)
:P+150→P
:End
:Disp P
```

```
ÉDITEUR : POP
LIGNE DU SCRIPT 0005
def population(n):
  p=2300
  for i in range(1,n+1):
    p=p+150
  return p
Fns... | a A # | Outils | Exéc | Script
```

```
PYTHON SHELL
>>> population(28)
6500
>>>
Fns... | a A # | Outils | Éditer | Script
```

Take care of the length of the interval

Open loop

```
ÉDITEUR : REBONDS
LIGNE DE SCRIPT 0001
def rebonds():_
  H=120
  R=0
  while H>=1:
    H=H*3/5
    R=R+1
  return (R)

Fns... | a A # | Outils | Exéc | Script
```

- ✓ Indent starts instructions
- ✓ « return » stop the program, take care to the indent

```
NORMAL FIXE2 AUTO RÉEL RAD MP
ÉDIT MENU: [alpha] [f5]
PROGRAM:REBONDS
:Effécran
:Input "INITIAL HEIGHT (CM
)  ",H
:0→R
:While H≥1
:3/5*H→H
:R+1→R
:End
:Disp "R=",R
```

```
ÉDITEUR : SITE
Ops
1:x=y     [sto ▸]
2:x==y    égal
3:x!=y    différent de
4:x>y
5:x>=y
6:x<y
7:x<=y
8:and
9:or
0↓not
Échap
```

- ✓ « tests » is accessible with the shortcut 2nde + math (tests A) permet de

Take care to the indent

La boucle non bornée

Exercise 4

On the first January 2018 the price of a new car was 20 000€. Each year the value of the car diminishes by 20%.

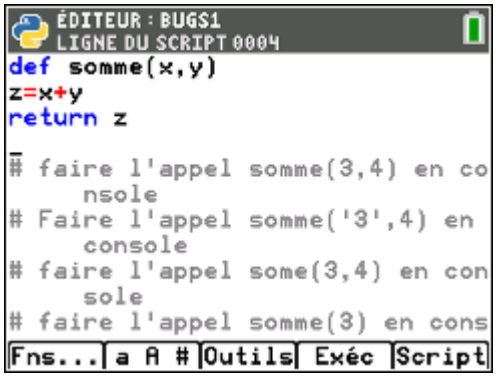
Write an algorithm which calculates the number of years which takes the value of the car to below 2000€.

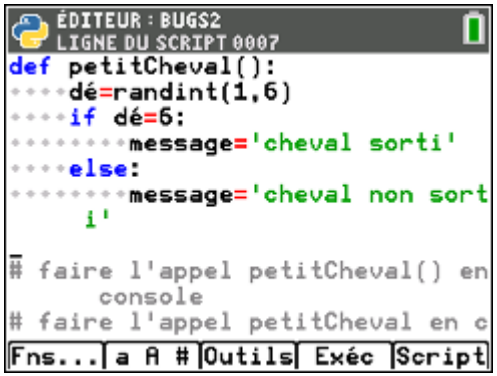
```
NORMAL FIX9 AUTO REAL RADIAN MP
EDIT MENU: [alpha] [F5]
PROGRAM:ACT4
:Input "Price ? ",V
:0→N
:While V≥2000
:0.8*V→V
:1+N→N
:End
:Disp N
```

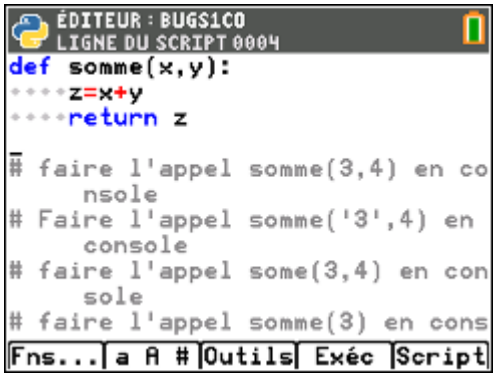
```
EDITOR: VOITURE
PROGRAM LINE 0006
def prix(v):
  n=0
  while v>=2000:
    v=0.8*v
    n=n+1
  return n
Fns... | a A # | Tools | Run | Files
```

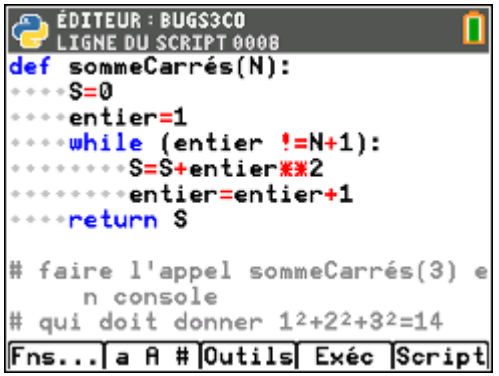
```
PYTHON SHELL
>>> prix(20000)
11
>>>
Fns... | a A # | Outils | Éditer | Script
```

Débugger



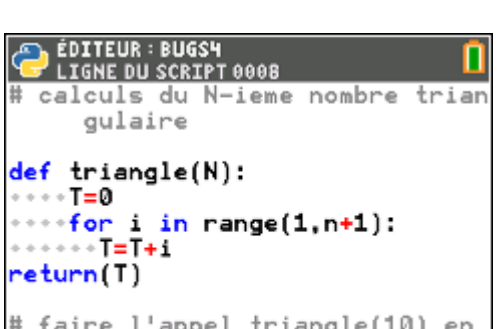


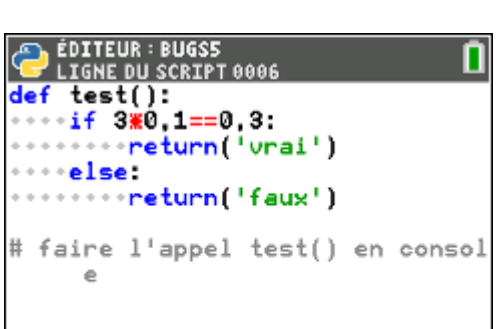


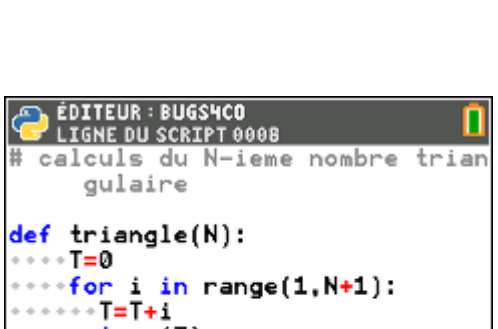


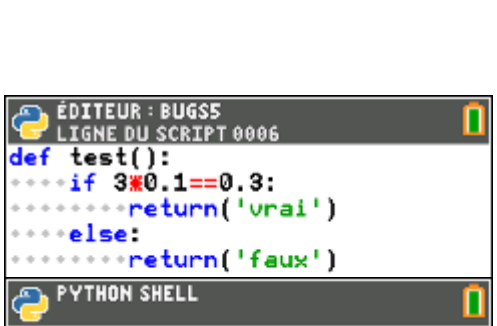
Les erreurs les plus courantes

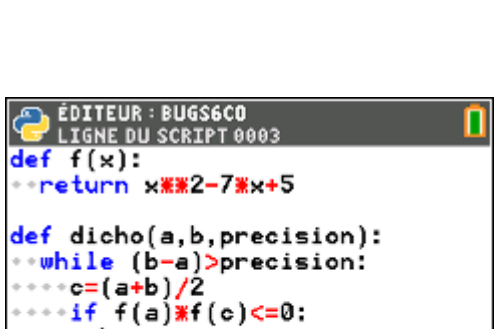
Débugger







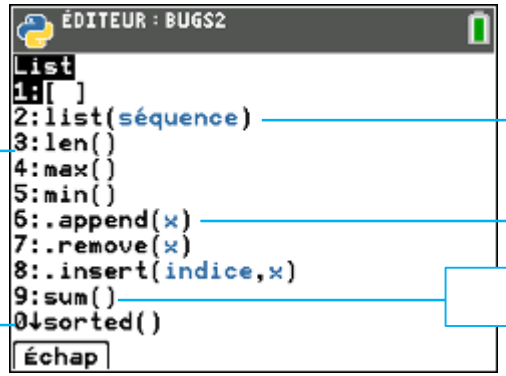




Oubli des deux points, indentation, appel de bibliothèque, majuscule/minuscule, virgule…

Lists

Shortcut



Number of objects in a list

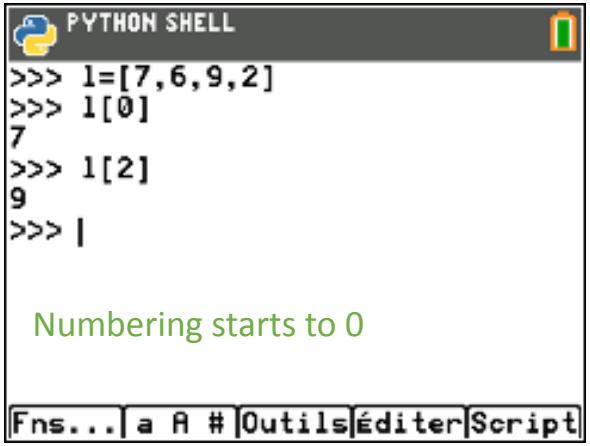
Arrange in ascending order

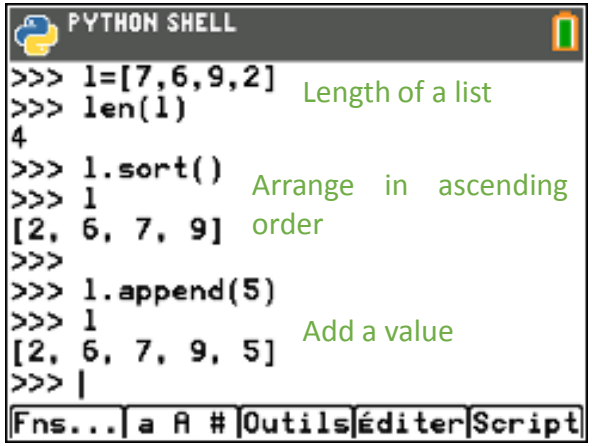
Display elements asked

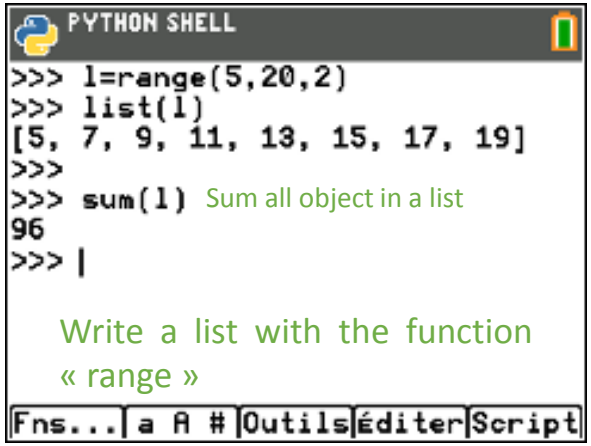
Add an object to a list

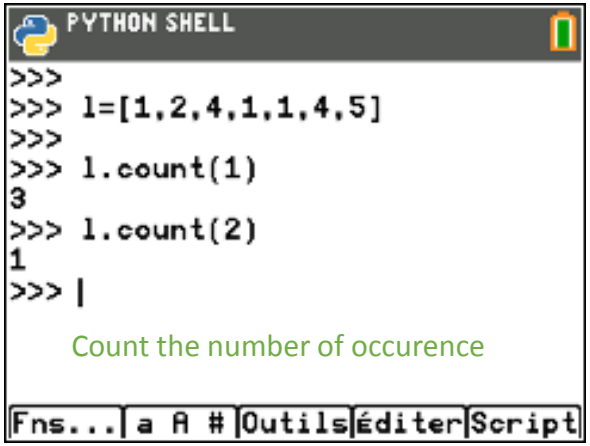
Sum all object of a list

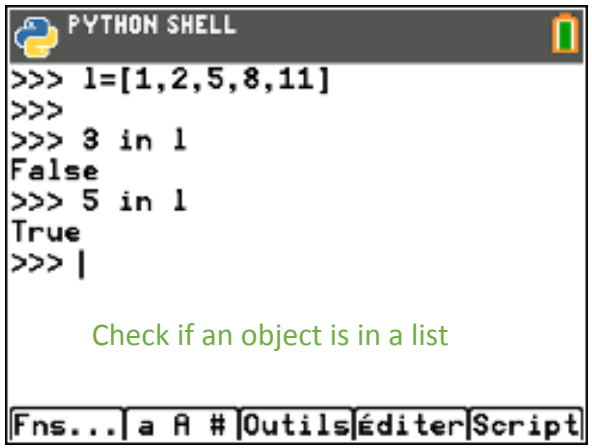
Lists

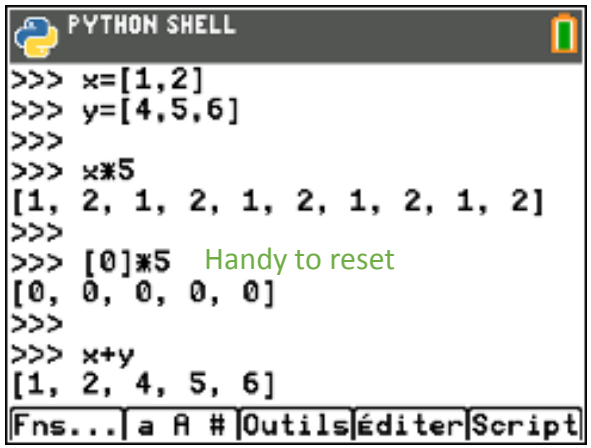

PYTHON SHELL
>>> l=[7,6,9,2]
>>> l[0]
7
>>> l[2]
9
>>>
Numbering starts to 0
Fns... a A # Outils éditer Script


PYTHON SHELL
>>> l=[7,6,9,2]
>>> len(l)
4
Length of a list
>>> l.sort()
>>> l
[2, 6, 7, 9]
Arrange in ascending order
>>>
>>> l.append(5)
>>> l
[2, 6, 7, 9, 5]
Add a value
>>>
Fns... a A # Outils éditer Script


PYTHON SHELL
>>> l=range(5,20,2)
>>> list(l)
[5, 7, 9, 11, 13, 15, 17, 19]
>>>
>>> sum(l) Sum all object in a list
96
>>>
Write a list with the function « range »
Fns... a A # Outils éditer Script


PYTHON SHELL
>>>
>>> l=[1,2,4,1,1,4,5]
>>>
>>> l.count(1)
3
>>> l.count(2)
1
>>>
Count the number of occurence
Fns... a A # Outils éditer Script

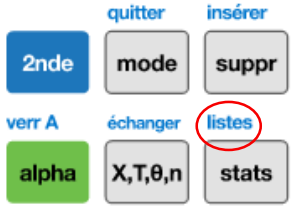

PYTHON SHELL
>>> l=[1,2,5,8,11]
>>>
>>> 3 in l
False
>>> 5 in l
True
>>>
Check if an object is in a list
Fns... a A # Outils éditer Script


PYTHON SHELL
>>> x=[1,2]
>>> y=[4,5,6]
>>>
>>> x*5
[1, 2, 1, 2, 1, 2, 1, 2, 1, 2]
>>>
>>> [0]*5 Handy to reset
[0, 0, 0, 0, 0]
>>>
>>> x+y
[1, 2, 4, 5, 6]
Fns... a A # Outils éditer Script

Lists

Write a function that return the list of the n first integer squared

Shortcut:




```
NORMAL FIX9 AUTO REAL RADIAN MP
EDIT MENU: [alpha] [f5]
PROGRAM:CARRES
:ClrHome
:ClrList L1
:Input "Number of values "
,N
:For(I,1,N)
:I²→L1(I)
:End
:Disp L1
```

```
EDITOR: LISTE
PROGRAM LINE 0005
def carres(n):
    liste=[]
    for i in range(1,n+1):
        liste.append(i**2)
    return liste_
Fns... | a A # | Tools | Run | Files
```

```
PYTHON SHELL
>>> carres(7)
[1, 4, 9, 16, 25, 36, 49]
>>>
Fns... | a A # | Outils | Éditer | Script
```

Au programme en première générale

Application

Exercise 5 : the hare and the tortoise

One part of the hare and tortoise game goes like this : The distance to run is 6 squares. The die is thrown and if a six comes up the hare advances 6 squares, otherwise the tortoise goes forward one square.

1) Programme a simulation of this game using Python.

2) Write a piece of script which returns the number of wins of the hare and the tortoise.


```
NORMAL FLOTT AUTO RÉEL RAD MP
ÉDIT MENU: [alpha] [f5]
PROGRAM:ACT5
:Effécran
:Fixe 0
:0→N:0→D
:While D<6 et N<6
:nbrAléatEnt(1,6)→D
:N+1→N
:Disp D
:End
:If N=6
:Then
:Disp "The Turtle wins"
:Else
:Disp "The hare wins"
:End
:Fixe 9
```

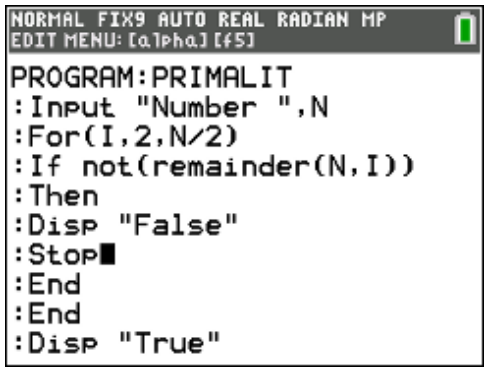
```
ÉDITEUR : TORTUE
LIGNE DU SCRIPT 0002
from random import randint

def course():
    de=0
    case=0
    while de<6 and case<6:
        de=randint(1,6)
        case=case+1
        print (de)
    if case==6:
        return "la tortue a gagn
    é"
    else :
        return "le lièvre a gagn
    é"

Fns... | a A # | Outils | Exéc | Script
```

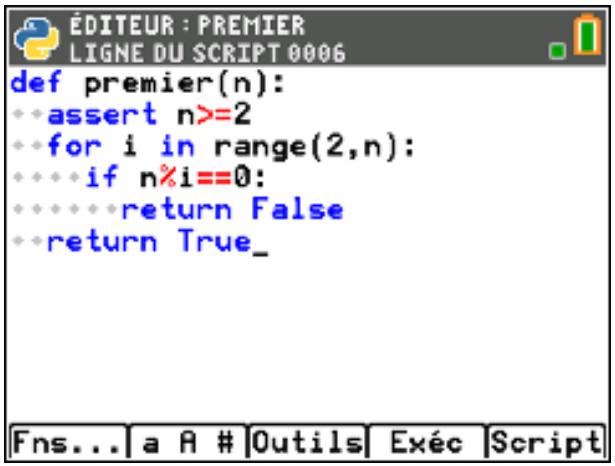
```
PYTHON SHELL
>>> course()
4
3
3
2
5
4
'la tortue a gagné'
>>>
Fns... | a A # | Outils | Éditer | Script
```

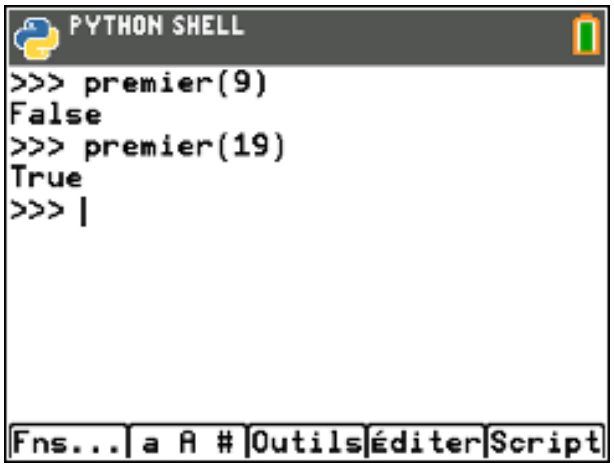
Application

Exercise 6 : Primeness test

Write an algorithm which tests for primeness and returns a boolean. Use the instruction assert(n>=2) (found in the instruction catalogue) to verify the hypothesis made in the argument.







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