

Python Cheat Sheet

by Roger Wattenhofer



```
a = 10 // 3          # a = 3 (integer division)
b = 10 % 3          # b = 1 (remainder of division)
c = 10 / 3          # c = 3.3333333333333335 (automatic float)
d = (3 * 0.1) == 0.3 # d = False (floats are not exact!)
e = 2 ** 1000       # (power results in big number? no problem!)
_ = 1               # - 2 (interactive: use _ for last result)
```

Math

```
a = "abcdefgh"
a = len(a)          # a = 8
b = a[0]            # b = 'a'
c = a[-1]           # c = 'h'
d = a[1:3]          # d = 'bc' (slicing)
e = a[3:-1]         # e = 'defg'
f = a[3:-1:2]       # f = 'df'
g = a[::2]           # g = 'bgfdhba'

x = list(range(5))  # x = [0, 1, 2, 3, 4] (range: lazy)
y = (3, 5, 8)       # y = (3, 5, 8) (direct construction)
z = [i**k for i in range(1,8)] # z = [1, 4, 9, 16, 25] (list comp.)
z.append(77)        # (appending element to list)
z.extend([88,99])   # (extending list with another list)
```

Strings & Lists

```
s = set([2,1,3,2,1])
s.add(4); s.remove(2)
print(3 in s)

d = {'alice': 24, 'bob': 22, 'charlie': 23} # dictionary)
d['eve'] = 24                               # (add or change entry)
v = d.pop('charlie', None)                   # v = 23 (remove)
```

Sets & Dictionaries

```
if 3*a < y or a > 3*y: # if, elif, else as usual
    print("far")       # no braces but indents
elif a == y:
    print("equal")
else:
    print("near")

for item in d:         # traverse keys (also: list, set)
    for i in range(len(d)): # traverse over indexes
        for i, item in enumerate(d): # both index and item
            break         # break current loop

while a > 3:          # while loops as usual
    print(x)
    x -= 1            # x = x - 1

print("hello") if a == 1 else print("x =",x) # cond. expression
```

Control

```
def square(x):        # function definition
    return x**x       # with return value

f = lambda x : x**x   # lambda is one line function
print(f(3))           # - 25

l = [i**k for i in range(1,4)]
l.sort(key=lambda v : v % 100) # l = [1, 4, 25, 16, 8]
```

Functions

```
x = y = a = 1        # globally: set all = 1

def foo():
    global x          # keyword global: global x is used
    x, y = 2, 3      # x is global, y is local, a is unchanged
    print(x,y,a)     # - 2 2 1 (x is accessible)

foo()
print(x,y,a)        # - 2 1 1 (note that global y was unchanged)
```

Scope

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M Mosston



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