

Εισαγωγή στην Επιστήμη των Υπολογιστών

Παράδειγμα

```
>>> m = 6
```

```
>>> x = 9
```

```
>>> b = -12
```

```
>>> y = m * x + b
```

```
>>> y
```

```
42
```

Παράδειγμα με string

```
>>> first_name="James"  
>>> last_name=" Bond"  
>>> my_name=first_name + last_name  
>>> print(my_name)  
James Bond
```

Παράδειγμα χρήσης μαθηματικών συναρτήσεων

```
>>> import math
```

```
>>> degrees = 45
```

```
>>> radians = degrees / 360.0 * 2 * math.pi
```

```
>>> math.sin(radians)
```

```
0.707106781187
```

```
>>> math.sqrt(2) / 2.0
```

```
0.707106781187
```

Χρήση μαθηματικών συναρτήσεων (2)

```
import decimal
```

```
x = decimal.Decimal('3.4')
```

```
y = decimal.Decimal('4.5')
```

```
a = x * y # a = decimal.Decimal('15.30')
```

```
b = x / y
```

```
# b = decimal.Decimal('0.755555555555555555555555555555555556')
```

```
# Ακρίβεια 3 σημαντικών ψηφίων
```

```
decimal.getcontext().prec = 3
```

```
c = x * y # c = decimal.Decimal('15.3')
```

```
d = x / y # d = decimal.Decimal('0.756')
```

Χρήση μαθηματικών συναρτήσεων (3)

```
>>> a = Decimal("42.5")
```

```
>>> b = Decimal("37.1")
```

```
>>> a + b
```

```
Decimal("79.6")
```

```
>>> a / b
```

```
Decimal("1.145552560646900269541778976")
```

```
>>> divmod(a,b)
```

```
(Decimal("1"), Decimal("5.4"))
```

```
>>> max(a,b)
```

```
Decimal("42.5")
```

Λογικοί τελεστές (1)

```
>>> 3 < 4 and 4 < 5
```

```
True
```

```
>>> 3 < 4 or 4 < 5
```

```
True
```

```
>>> 3 < 4 and 5 < 4
```

```
False
```

```
>>> 3 < 4 or 5 < 4
```

```
True
```

Λογικοί τελεστές (2)

```
>>> not(3 < 4 and 4 < 5)
```

```
False
```

```
>>> not(3 < 4 or 4 < 5)
```

```
False
```

```
>>> not(3 < 4 and 5 < 4)
```

```
True
```

```
>>> not(3 < 4 or 5 < 4)
```

```
False
```


Παράδειγμα

```
>>> BLACK = 1
>>> BROWN = 2
>>> GREEN = 3
>>> eyeColor = BLACK
>>> eyeColor
1
>>> eyeColor = GREEN
>>> eyeColor == BLACK
False
>>> eyeColor == BROWN
False
>>> eyeColor == GREEN
True
```

Χρήση συναρτήσεων

```
import random
```

```
>>> random.randint(5, 10)
```

```
5
```

```
>>> random.randint(5, 10)
```

```
9
```

```
>>> t = [1, 2, 3]
```

```
>>> random.choice(t)
```

```
2
```

```
>>> random.choice(t)
```

```
3
```

Χρήση συναρτήσεων (2)

- `>>> print range(10)`
- `[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]`
- `>>> print range(5, 10)`
- `[5, 6, 7, 8, 9]`
- `>>> print range(0, 10, 3)`
- `[0, 3, 6, 9]`
- `>>> print range(-10, -100, -30)`
- `[-10, -40, -70]`

Παράδειγμα με string

```
a = "Hello World"
```

```
b = a[4]    # b = 'o'
```

```
c = a[:5]   # c = "Hello"
```

```
d = a[6:]   # d = "World"
```

```
e = a[3:8]  # e = "lo Wo"
```

Παράδειγμα με string (2)

`x = "37"`

`y = "42"`

`z = x + y` `# z = "3742"` (String ένωση)

`z = int(x) + int(y)` `# z = 79` (+ ακεραίων)

Παράδειγμα string (3)

```
>>> fruit = 'banana'
```

```
>>> len(fruit)
```

```
6
```

```
>>> last = fruit[length-1]
```

```
>>> print last
```

```
a
```

Χρήση συναρτήσεων χειρισμού string

```
>>> word = 'banana'
```

```
>>> new_word = word.upper()
```

```
>>> print new_word
```

```
BANANA
```

Χρήση συναρτήσεων χειρισμού string (2)

```
>>> word = 'banana'
```

```
>>> index = word.find('a')
```

```
>>> print index
```

1

```
>>> word.find('na')
```

2

```
>>> word.find('na', 3)
```

4

Χρήση if

if $x < y$:

 print 'x is less than y'

elif $x > y$:

 print 'x is greater than y'

else:

 print 'x and y are equal'

Χρήση if (2)

```
if x == y:
```

```
    print 'x and y are equal'
```

```
else:
```

```
    if x < y:
```

```
        print 'x is less than y'
```

```
    else:
```

```
        print 'x is greater than y'
```

Εισαγωγή από το πληκτρολόγιο

```
x = int(raw_input("Please enter an integer: "))
```

```
if x & 1:
```

```
    print "x is odd"
```

```
else:
```

```
    print "x is even"
```