

# Python 01

## Booleans





# Numbers

Three numeric types

- Int
- Float
- Complex



# Integer

- Whole number
- Positive or negative
- No decimals
- Unlimited length



# Float

Number with decimal



# Complex numbers

Use  $j$  for imaginary part

$$x = 3 + 5j$$

$$y = 5j$$



# Mathematical operators

+ Addition  $6+2=8$

- Subtraction  $6-2=4$

\* multiplication  $6 * 2 = 12$

/ division  $6 / 2 = 3$

% modulus  $5 \% 2 == 1$



# Boolean

Booleans are written as True or False capitalization matters

Logical Operators are:

- and
- or
- not

Relational operators

- <, >, <=, >=, == (equals), !=

Why use == instead of = ?

# Logical Operator Reference

## **&& AND**

Expression	Is
true && true	true
true && false	false
false && true	false
false && false	false

## **|| OR**

Expression	Is
true    true	true
true    false	true
false    true	true
false    false	false

## **! NOT**

Expression	Is
!true	false
!false	true





# If-statement

if condition: #colon here

do something

else :

do something else



# Other example

if a:

    if b:

        statement1

    else:

        statement2

else:

    if c:

        statement3

    else:

        statement4

if a:

    statement1

else:

    if b:

        statement3

    else:

        if c:

            statement4

        else:

            statement5



# Elif

```
if a:
```

```
    statement1
```

```
elif b:
```

```
    statement2
```




# Functions

```
def <function_name> ( <comma_separated_parameters> ) :
```

```
    #optionally multiple lines of calculations
```

```
    return <result>
```



```
def foo(a, b):  
    return a + b
```

```
def hello(name):  
    print("Hello", name)
```

```
foo(5, 6)
```


```
hello("David")
```



Write a function `inBetween(number,a,b)` that returns true when the number is between a and b. Assume  $a < b$ .

DO NOT use `a<b<c` syntax, use `and/or`.

Modify it to work when a is not always less than b.



```
def inBetween(number, a, b):  
    if (a > b) :  
        temp = a  
        a = b  
        b = temp  
    return (a < number) and (number < b)  
print(inBetween(8, 7, 6))
```



# CodingBat

Sleep in: <https://codingbat.com/prob/p173401>

Love6: <https://codingbat.com/prob/p100958>

monkey\_trouble: <https://codingbat.com/prob/p120546>