Numeric Data Type (bool & complex)

- Boolean and complex are numeric data type.
- **Boolean** data is logical data.
- Boolean data types are used in writing conditions using relational and logical operators.
- The result of a Boolean is either True or False.

True — 1
False — 0

The value of True is 1 and False is 0.

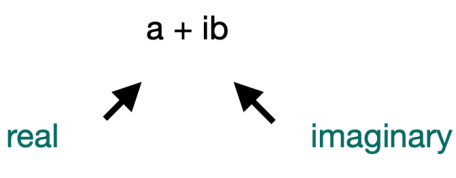
- Example :

```
>>> a=True
>>> a
True
>>> int(a)
1
>>> type(a)
<class 'bool'>
>>>
```

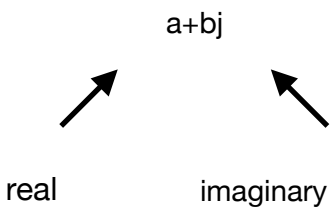
Complex Numbers

- Complex numbers have real part and an imaginary part.
- Complex numbers are mostly used in mathematical operations.

Mathematical representation:



Python representation:



- Here **i** and **j** are the pre- defined constants.
- where i= √-1, or j= √-1
- In mathematics we know that the square root of negative numbers is undefined,
- lets take an example to understand this:

25+ √-9
25 + √-1 * 9
25 + √-1 * √ 9
25 + √-1 3
25 + i3

- Complex Data types can be used when an application is being developed in Python involving complex numbers.
- We can create complex numbers using integer, float value and even using functions.

```
X = 3 + 5j                  // Integer

x = 3.5 + 5.9j              // float

X = complex( 3.5, 5.9)      // function
```

- Operators like + , - , * , / can be used to perform operations on complex numbers .