j_complex_numbers_ops

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Complex Number = Real Number +/- Imaginary Number
In python, 'j' is used to represent the imaginary number.

```
In [1]: num1 = 2 + 3j

In [2]: num1

Out[2]: (2+3j)

In [3]: print(num1)

(2+3j)


In [4]: print("type(num1)=", type(num1))

type(num1)= <class 'complex'>
```

Python is an object oriented programming language.
Object - value - type - Address

```
In [5]: print(dir(num1))

['__abs__', '__add__', '__bool__', '__class__', '__delattr__', '__dir__', '__divmod__', '__doc
```

```
In [6]: num5 = 2.0 - 4.3j

In [7]: num5

Out[7]: (2-4.3j)

In [8]: num5.real

Out[8]: 2.0

In [9]: num1

Out[9]: (2+3j)
```

```
In [10]: num1.real  # .real will result in float value only

Out[10]: 2.0

In [11]: num1

Out[11]: (2+3j)

In [12]: num1.imag # .imag will result in float value only

Out[12]: 3.0

In [13]: num2 = 0.0 - 2j
         num2.real

Out[13]: 0.0

In [14]: num2.imag

Out[14]: -2.0

In [15]: num3 = 1.0 - 0j
         num3.imag

Out[15]: 0.0

In [16]: type(num3)

Out[16]: complex

In [17]: num3 = 1.0 -0
         type(num3)

Out[17]: float

In [18]: num3 = 0j
         type(num3)

Out[18]: complex

In [19]: 4j

Out[19]: 4j

In [20]: 4 *j

        ---------------------------------------------------------------------------

        NameError                                 Traceback (most recent call last)

        <ipython-input-20-8609b066ea5a> in <module>
    ----> 1 4 *j


        NameError: name 'j' is not defined
```

```
In [21]: j4
```

```
---------------------------------------------------------------------------

NameError                                 Traceback (most recent call last)

<ipython-input-21-f5c4e58b2682> in <module>
----> 1 j4


NameError: name 'j4' is not defined
```

NOTE: 4*j*, *j*4, *j*4 are not possible.

```
In [22]: num1.real + num2.imag  # Interview Question
```

```
Out[22]: 0.0
```

```
In [23]: num1.real + num2.imag * j
```

```
---------------------------------------------------------------------------

NameError                                 Traceback (most recent call last)

<ipython-input-23-1cf5b3ab4939> in <module>
----> 1 num1.real + num2.imag * j


NameError: name 'j' is not defined
```

```
In [24]: num1.real + num2.imag * 1j
```

```
Out[24]: (2-2j)
```