Arithmetic operations on complex numbers

A complex number – also known as imaginary number – is defined as square root of (-1) (and is denoted by J or j. A complex number is represented as x+yj. Both x and y are real numbers. Y multiplied by the imaginary number forms the imaginary part of a complex number.

You can use arithmetic operators on complex numbers in the same way as you would for integer or float data types. The output is governed by rules of mathematics for complex numbers.

Try each of the following examples in IDLE and check the result for yourself.

Addition and Subtraction

The addition or subtraction of complex numbers involves the addition or subtraction of their corresponding real and imaginary parts.

>>> a=6+4j

>>> b=3+2j

>>>a+b

(9+6j)

>>> a-b

(3+2j)

Multiplication

The multiplication of two complex numbers is very similar to multiplication of two binomials. Consider the following example:

a=6+4j

b=3+2j

c=a*b

c=(6+4j)*(3+2j)

c=(18+12j+12j+8*-1)

c=10+24j

You can verify this result in IDLE.

>>> a=6+4j

>>> b=3+2j

>>> a*b

(10+24j)

Division

The division of two complex numbers involvesmultiplying both sides by the **conjugate** of the denominator, which is a number with the same real part and the opposite imaginary part. Consider the following example:

a=6+4j

b=3+2j

c=a/b

c=(6+4j)*(3-2j)/(3+2j)(3-2j)

c=(18-12j+12j-8*-1)/(9-6j+6j-4*-1)

c=26/13

c=2+0j

You can verify this result in IDLE.

```
>>> a=6+4j

>>> b=3+2j

>>> a/b

(2+0j)
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