Asynchronous Assignment

Date: 24-01-24

In [37]:
```
z = [3 + 7j, 18 - 32j, -5/3 + 1j*(2**0.5), (2**0.5)/2 - 1j/2, 3j]
z
```

Out[37]:
```
[(3+7j),
 (18-32j),
 (-1.6666666666666667+1.4142135623730951j),
 (0.7071067811865476-0.5j),
 3j]
```

> Polar Form

In [38]:
```
dict(zip(z,[(round(np.abs(i),3),round(np.angle(i),3)) for i in z]))
```

Out[38]:
```
{(3+7j): (7.616, 1.166),
 (18-32j): (36.715, -1.058),
 (-1.6666666666666667+1.4142135623730951j): (2.186, 2.438),
 (0.7071067811865476-0.5j): (0.866, -0.615),
 3j: (3.0, 1.571)}
```

> Rectangular Form

In [39]:
```
dict(zip(z,[(i.real,i.imag) for i in z]))
```

Out[39]:
```
{(3+7j): (3.0, 7.0),
 (18-32j): (18.0, -32.0),
 (-1.6666666666666667+1.4142135623730951j): (-1.6666666666666667,
  1.4142135623730951),
 (0.7071067811865476-0.5j): (0.7071067811865476, -0.5),
 3j: (0.0, 3.0)}
```

> Absolute Value

In [40]:
```
dict(zip(z,[round(np.abs(i),3) for i in z]))
```

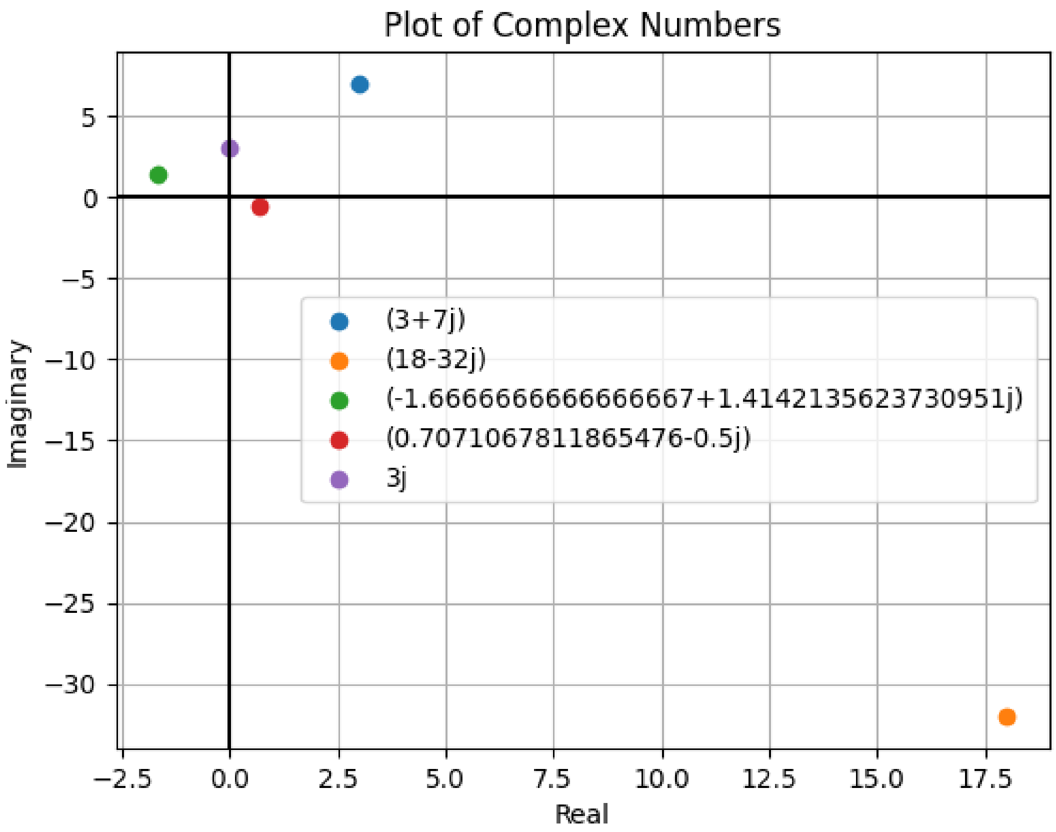
Out[40]:
```
{(3+7j): 7.616,
 (18-32j): 36.715,
 (-1.6666666666666667+1.4142135623730951j): 2.186,
 (0.7071067811865476-0.5j): 0.866,
 3j: 3.0}
```

> Argument

In [41]:
```
dict(zip(z,[round(np.angle(i),3) for i in z]))
```

Out[41]:
```
{(3+7j): 1.166,
 (18-32j): -1.058,
 (-1.6666666666666667+1.4142135623730951j): 2.438,
 (0.7071067811865476-0.5j): -0.615,
 3j: 1.571}
```

In [42]:
```
plotComplex(z);
```



> Verify Eulers Formula

In [36]:

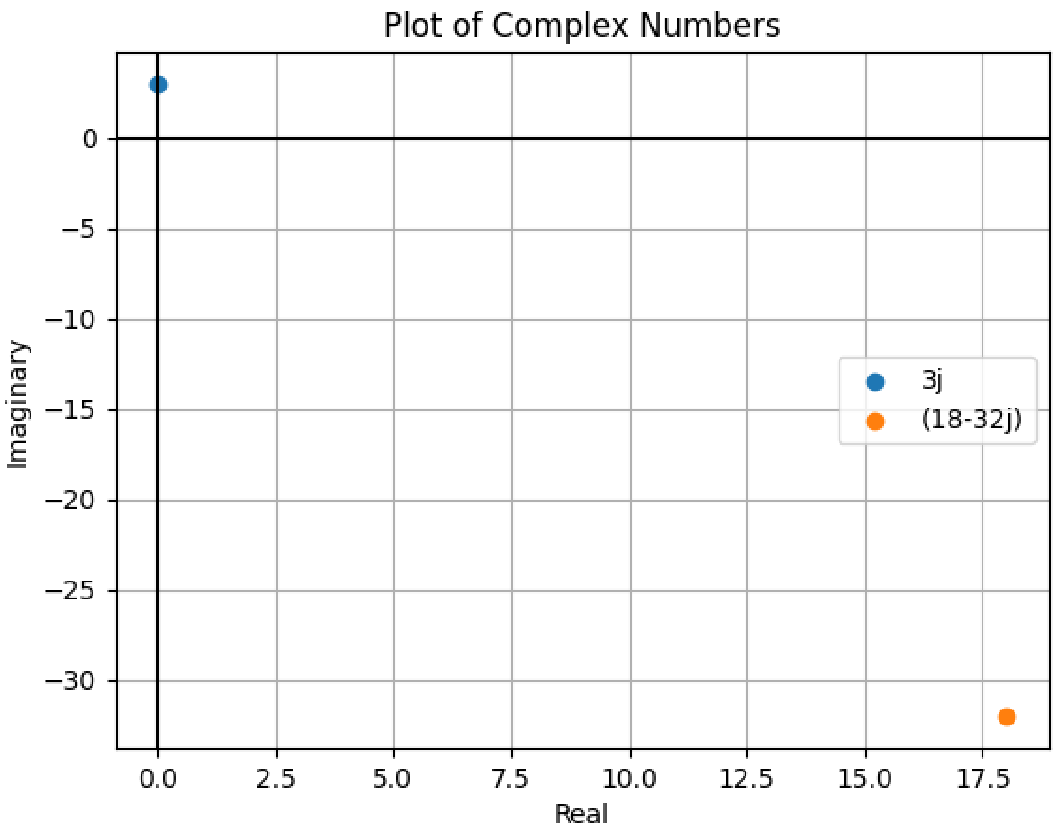
```
for i in z:
    print(np.round(i,3) == np.round(np.abs(i)*(np.cos(np.angle(i)) + 1j*np.sin(np.angle(i
```

```
True
True
True
True
True
```

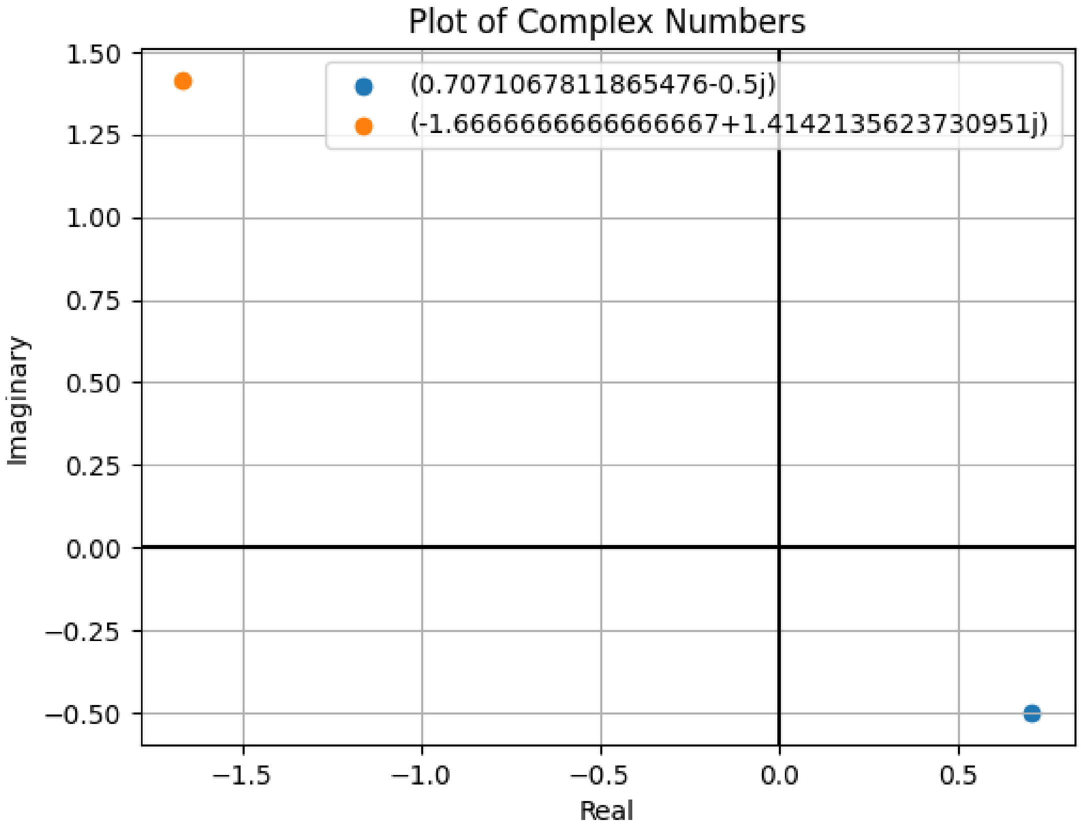
> Plotting any two of the numbers

In [47]:

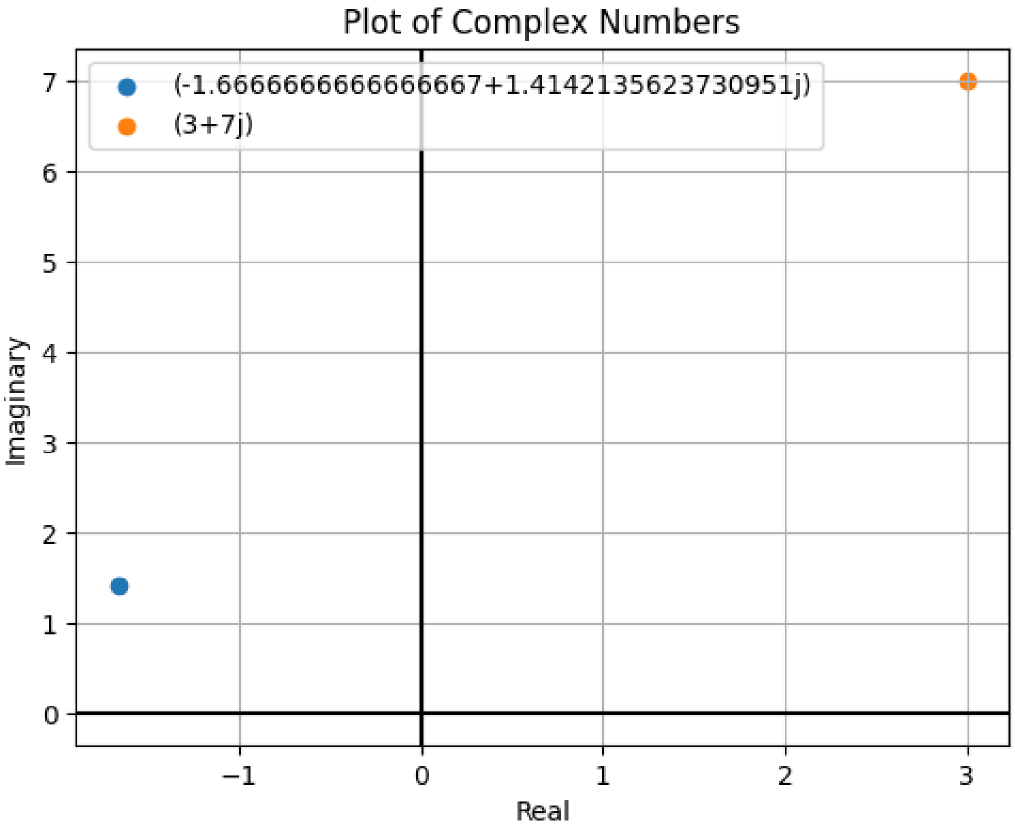
```
plotComplex(random.choices(z,k = 2));
```



In [48]:
```
plotComplex(random.choices(z,k = 2));
```



In [51]:
```
plotComplex(random.choices(z,k = 2));
```


Plot of Complex Numbers
(-1.6666666666666667+1.4142135623730951j)
(3+7j)
Imaginary
0
1
2
3
4
5
6
7
−1
0
1
2
3
Real

```
In [ ]:
```