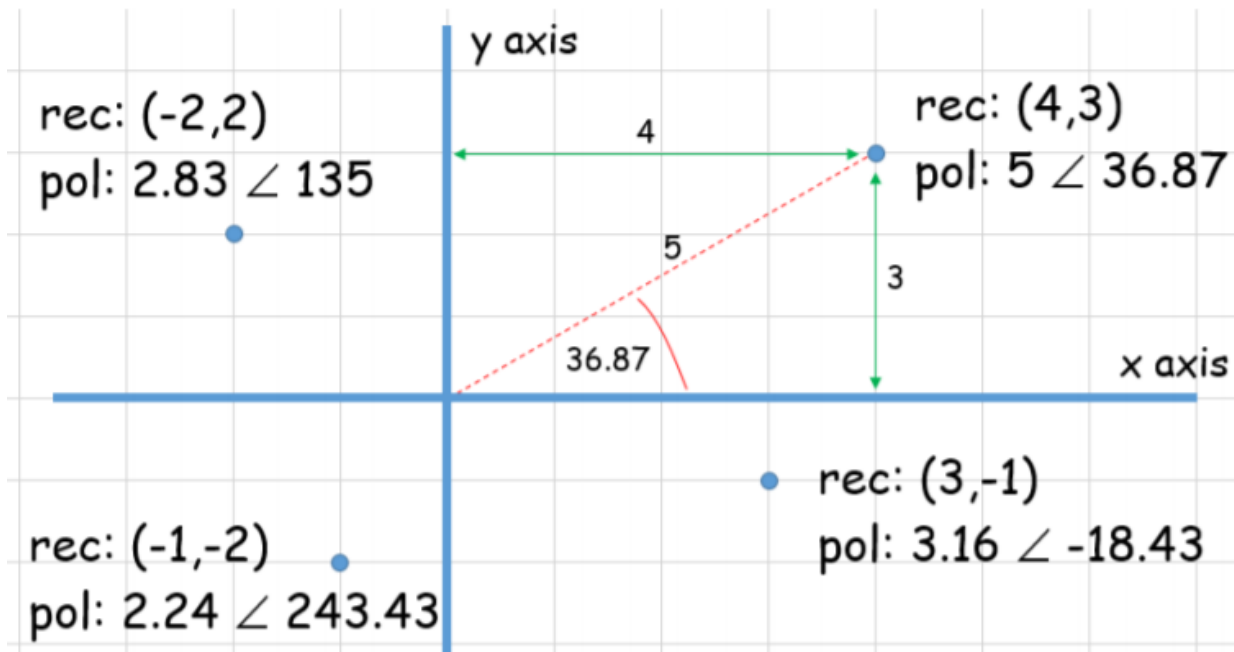


P10. Rectangular and polar forms

Location of any point on two-dimension plane is specified by coordinate,

which can be represented in either rectangular or polar form. See the following picture for illustration of rectangular and polar forms.



Write a function, named “rec_to_pol”, to take x and y values of a coordinate in rectangular and then values (magnitude and phase) of the polar form.

Use the P10 template (P10_Template.py; note: template is to ensure the exact display format and allows smooth auto-grading).

Example 1:

```
=====
Enter (x y):4 3
polar: 5.00 with 36.87 degree
=====
```

Example 2:

```
=====
Enter (x y):-2 2
polar: 2.83 with 135.00 degree
=====
```

Example 3:

```
=====
Enter (x y):-1 -2
polar: 2.24 with 243.43 degree
=====
```

Example 4:

```
=====
Enter (x y):3 -1
polar: 3.16 with -18.43 degree
=====
```

Example 5:

```
=====
Enter (x y):0 0
polar: 0.00 with 0.00 degree
=====
```

Example 6:

```
=====
Enter (x y):0 8
polar: 8.00 with 90.00 degree
=====
```

Example 7:

```
=====
Enter (x y):0 -1
polar: 1.00 with -90.00 degree
=====
```

Here is P10_template.py

```
"""
Write a function to take x and y values of a coordinate in rectangular
and then values (magnitude and phase) of the polar form.
"""
import math

# Write your function here


if __name__ == '__main__':
    r, c = input('Enter (x y):').split()
    m, a = rec_to_pol(float(r), float(c))
    print("polar: {:.2f} with {:.2f} degree".format(m, a))
```