

Unit 10 (Chapter 6): Parametric & Polar

**6.4 Polar Coordinates: Equation Conversion**

Target 10D: Understand the Polar Coordinate System by performing Polar/Rectangular Coordinate Conversions

*Review of Prior Concepts*

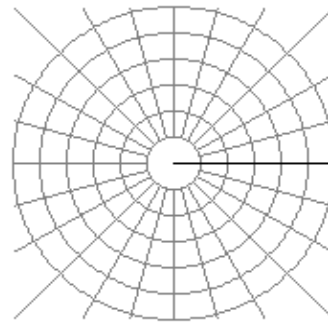
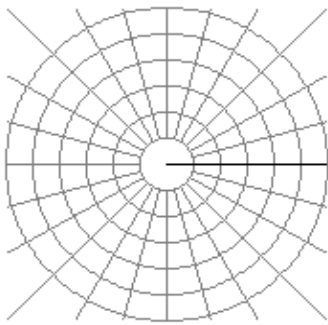
1. Find the rectangular coordinates of the point with the polar coordinates  $P(4, \frac{\pi}{6})$

2. Find two polar coordinate pairs for the point with rectangular coordinates  $Q(3, -3)$

☒ Use a TI-Nspire to sketch a graph of the polar equations:

1.  $r = 4 \cos \theta$

2.  $r = 3 \sin 2\theta$



Recall: Polar/Rectangular Coordinate Conversion Equations

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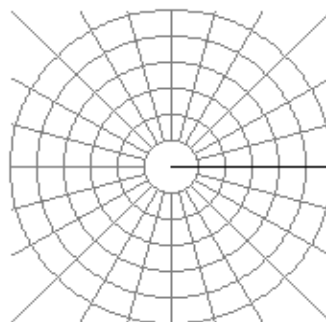
- Convert the polar equation to rectangular form and identify the graph. Support your answer by graphing the polar equation on a TI-Nspire.

3.  $r = -6 \csc \theta$

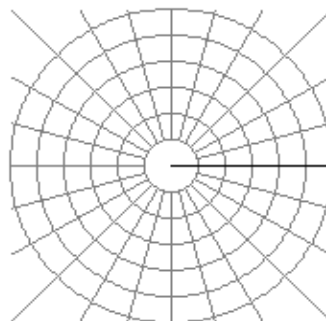
4.  $r = 4 \cos \theta$

- Convert the rectangular equation to polar form. Sketch a graph of the polar equation.

5.  $x = -4$



6.  $(x - 1)^2 + (y + 4)^2 = 17$



**More Practice**

**Polar Equations**

[http://www.anlyzemath.com/polarcoordinates/polar\\_to\\_rectangular\\_eq.html](http://www.anlyzemath.com/polarcoordinates/polar_to_rectangular_eq.html)

<http://www.ck12.org/book/CK-12-Trigonometry-Concepts/section/6.6/?noindex=None>

<https://www.math.uh.edu/~mmsosa/Math1330/Calendar/1330Day28.pdf>

[http://www.softschools.com/math/pre\\_calculus/polar\\_equation\\_conversion\\_between\\_rectangular\\_form/](http://www.softschools.com/math/pre_calculus/polar_equation_conversion_between_rectangular_form/)

<https://youtu.be/29VW-NAd31A>

<https://youtu.be/IKbRiU7kL2w>

<https://youtu.be/9saYZmiQJpk>

**Homework Assignment**

p.539 #1-7 odd,13,15,21,27,29