

Section 11.6 Polar Equations of Conics

Objective: In this lesson you learned how to define a conic in terms of eccentricity and to write equations of conics in polar form.

Course Number

Instructor

Date

I. Alternative Definition of Conics (Page 820)

The locus of a point in the plane that moves so that its distance from a fixed point (focus) is in a constant ratio to its distance from a fixed line (directrix) is a _____. The constant ratio is the _____ of the conic and is denoted by e . Moreover, the conic is an ellipse if _____, a parabola if _____, and a hyperbola if _____.

For each type of conic, the _____ of the polar coordinate system corresponds to the fixed point (focus) given in the above definition.

What you should learn

How to define conics in terms of eccentricity

II. Polar Equations of Conics (Pages 820–822)

The graph of the polar equation _____ is a conic with a vertical directrix to the right of the pole, where $e > 0$ is the eccentricity and $|p|$ is the distance between the focus (pole) and the directrix.

The graph of the polar equation _____ is a conic with a vertical directrix to the left of the pole, where $e > 0$ is the eccentricity and $|p|$ is the distance between the focus (pole) and the directrix.

The graph of the polar equation _____ is a conic with a horizontal directrix above the pole, where $e > 0$ is the eccentricity and $|p|$ is the distance between the focus (pole) and the directrix.

What you should learn

How to write equations of conics in polar form

The graph of the polar equation _____ is a conic with a horizontal directrix below the pole, where $e > 0$ is the eccentricity and $|p|$ is the distance between the focus (pole) and the directrix.

Example 1: Identify the type of conic from the polar equation

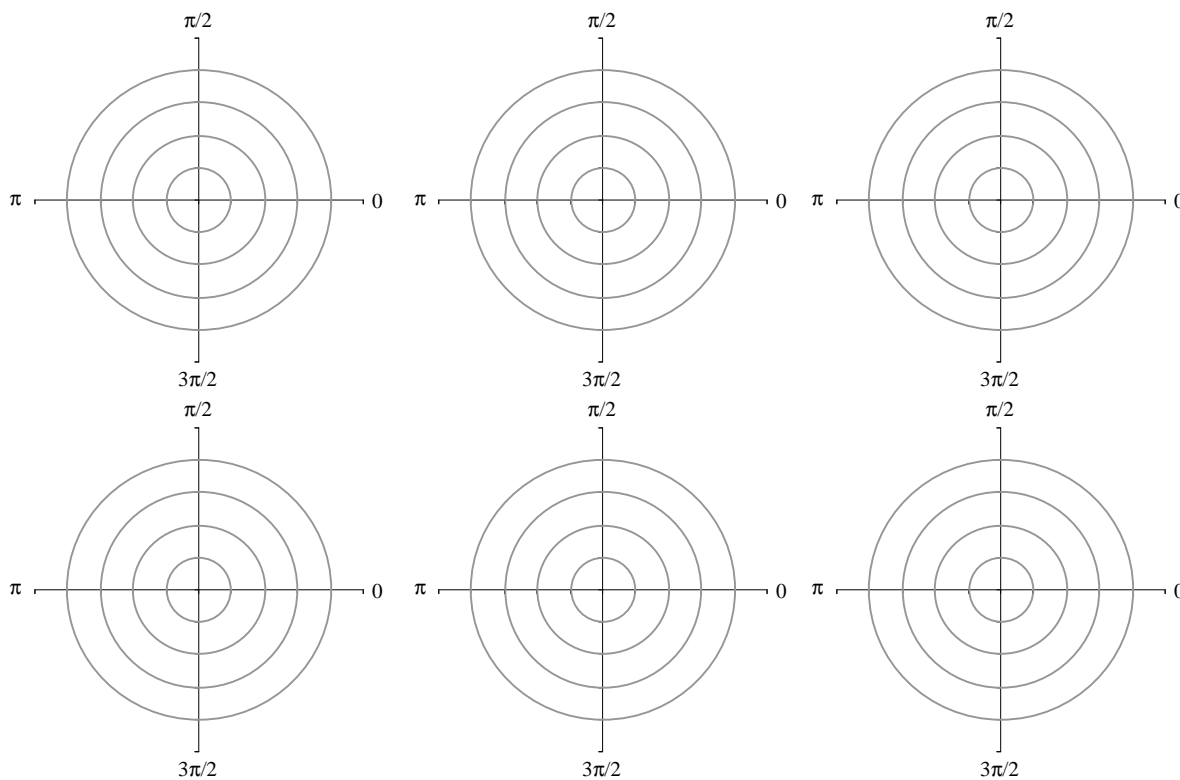
$$r = \frac{36}{10 + 12 \sin \theta}$$

, and describe its orientation.

III. Applications (Page 823)

Describe a real-life application of polar equations of conics.

What you should learn
 How to use equations of conics in polar form to model real-life problems



Homework Assignment

Page(s)

Exercises