

Section 9.7 Graphs of Polar Equations

Objective: In this lesson you learned how to graph polar equations.

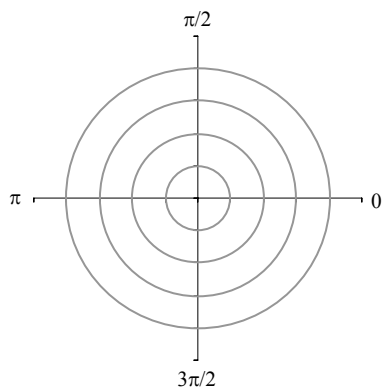
Course Number

Instructor

Date

I. Introduction (Pages 713–714)

Example 1: Use point plotting to sketch the graph of the polar equation $r = 3 \cos \theta$.



What you should learn

How to graph polar equations by point plotting

The graph of the polar equation $r = f(\theta)$ can be rewritten in parametric form, using t as a parameter, as follows:

II. Symmetry (Pages 714–715)

The graph of a polar equation is symmetric with respect to the following if the given substitution yields an equivalent equation.

Substitution

- 1) The line $\theta = \pi/2$:
- 2) The polar axis:
- 3) The pole:

Example 2: Describe the symmetry of the polar equation $r = 2(1 - \sin \theta)$.

What you should learn

How to use symmetry as a sketching aid

III. Zeros and Maximum r -Values (Pages 716–717)

Two additional aids to sketching graphs of polar equations are . . .

What you should learn

How to use zeros and maximum r -values as sketching aids

Example 3: Describe the zeros and maximum r -values of the polar equation $r = 5 \cos 2\theta$

IV. Special Polar Graphs (Pages 718–719)

List the general equations that yield each of the following types of special polar graphs:

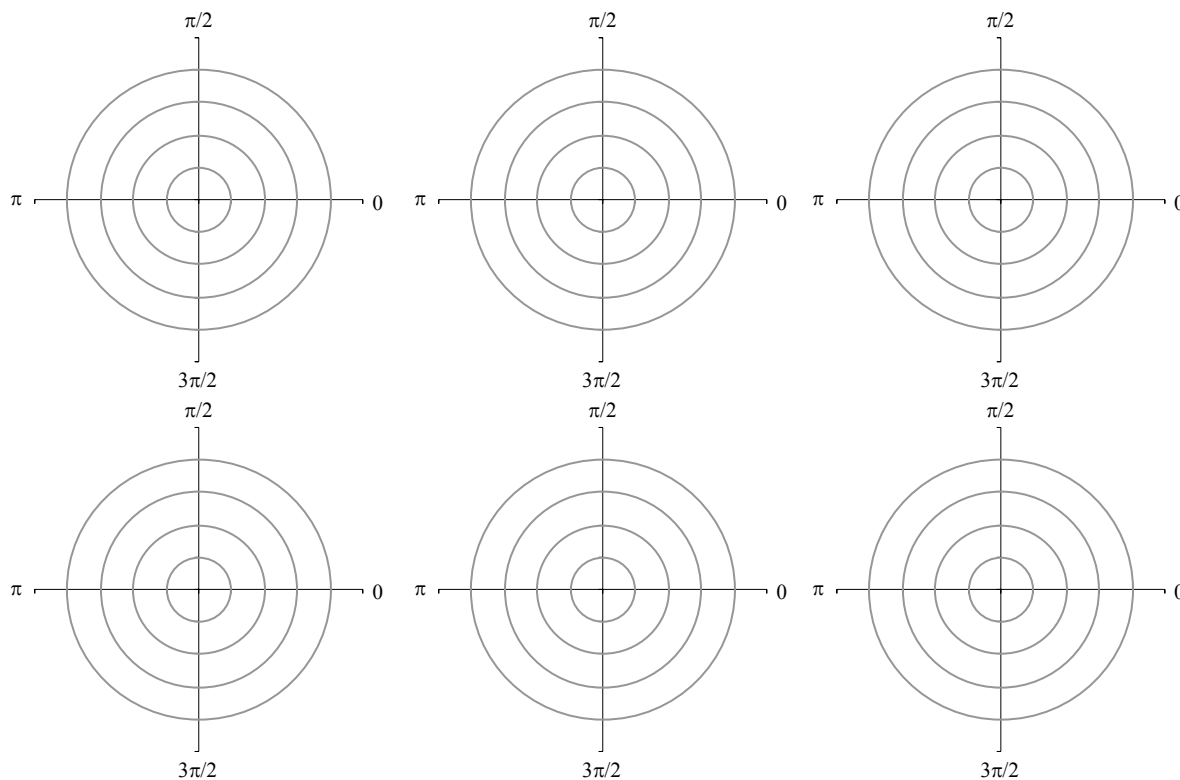
What you should learn
How to recognize special polar graphs

Limaçons:

Rose curves:

Circles:

Lemniscates:



Homework Assignment

Page(s)

Exercises