

Section 9.2 Ellipses

Objective: In this lesson you learned how to write the standard form of the equation of an ellipse, and analyze and sketch the graphs of ellipses.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Foci**Vertices****Major axis****Center****Minor axis****I. Introduction** (Pages 671–674)

An **ellipse** is . . .

What you should learn

How to write equations of ellipses in standard form

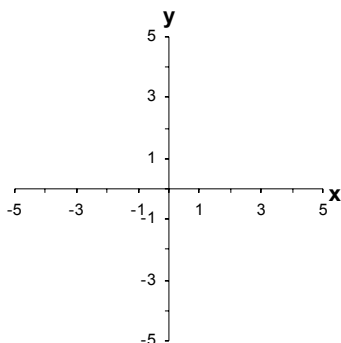
The standard form of the equation of an ellipse with center (h, k) and a horizontal major axis of length $2a$ and a minor axis of length $2b$, where $0 < b < a$, is: _____

The standard form of the equation of an ellipse with center (h, k) and a vertical major axis of length $2a$ and a minor axis of length $2b$, where $0 < b < a$, is: _____

In both cases, the foci lie on the major axis, c units from the center, with $c^2 =$ _____.

If the center is at the origin $(0, 0)$, the equation takes one of the following forms: _____ or _____.

Example 1: Sketch the ellipse given by $4x^2 + 25y^2 = 100$.



II. Applications of Ellipses (Page 675)

Describe a real-life application in which parabolas are used.

What you should learn

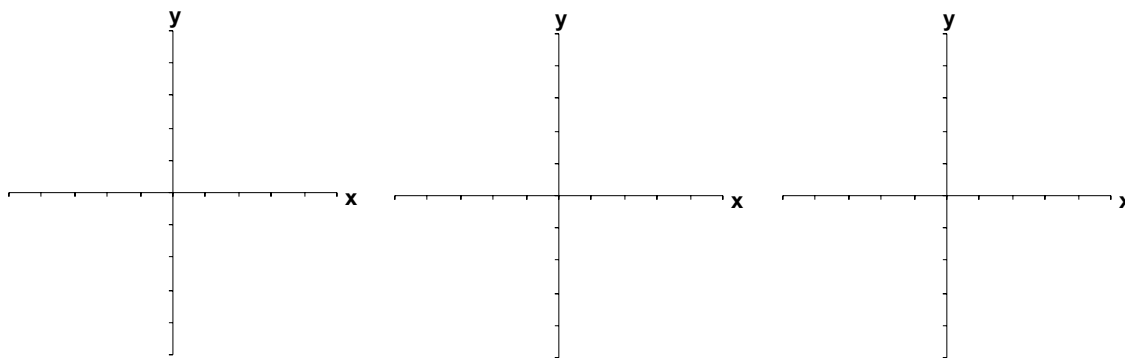
How to use properties of ellipses to model and solve real-life problems

III. Eccentricity (Page 676)

_____ measures the ovalness of an ellipse. It is given by the ratio $e = \frac{\text{distance from center to focus}}{\text{distance from center to vertex}}$. For every ellipse, the value of e lies between _____ and _____. For an elongated ellipse, the value of e is close to _____.

What you should learn

How to find eccentricities of ellipses



Homework Assignment

Page(s)

Exercises