

Section 4.5 Translations of Conics

Objective: In this lesson you learned how to recognize, graph, and write equations of conics that have been shifted vertically or horizontally in the plane.

Course Number

Instructor

Date

I. Vertical and Horizontal Shifts of Conics (Pages 363–364)

Write the standard form of the equation of a horizontal parabola with vertex at (h, k) and directed distance p from the vertex to the focus: _____

Write the standard form of the equation of a vertical parabola with vertex at (h, k) and directed distance p from the vertex to the focus: _____

Write the standard form of the equation of a circle with radius r and center at (h, k) : _____

Write the standard form of the equation of an ellipse centered at (h, k) and having a horizontal major axis of length $2a$ and minor axis of length $2b$: _____

Write the standard form of the equation of an ellipse centered at (h, k) and having a vertical major axis of length $2a$ and minor axis of length $2b$: _____

Write the standard form of the equation of a hyperbola centered at (h, k) and having a horizontal transverse axis of length $2a$ and conjugate axis of length $2b$: _____

Write the standard form of the equation of a hyperbola centered at (h, k) and having a vertical transverse axis of length $2a$ and conjugate axis of length $2b$: _____

What you should learn

How to recognize equations of conics that have been shifted vertically or horizontally in the plane

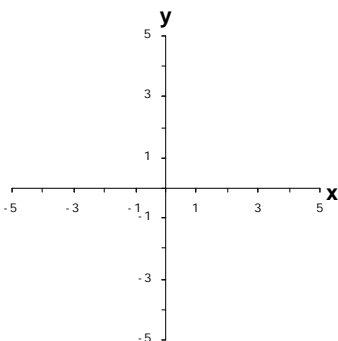
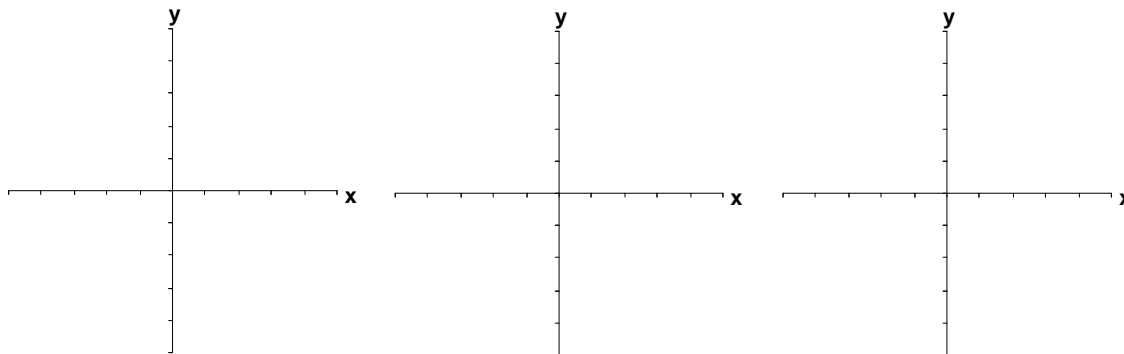
II. Equations of Conics in Standard Form (Pages 365–367)

To write an equation of the form $ax^2 + by^2 + cx + dy + e = 0$ in standard form, . . .

What you should learn

How to write and graph equations of conics that have been shifted vertically or horizontally in the plane

Example 1: Classify the equation $9x^2 + y^2 - 18x - 4y + 4 = 0$ as a circle, a parabola, an ellipse, or a hyperbola. Then sketch its graph.

**Additional notes****Homework Assignment**

Page(s)

Exercises