

7.8U Technology: Graphing Conics Using Technology

Specific Expectations

- LC2.01U identify the standard forms for the equations of parabolas, circles, ellipses, and hyperbolas having centres at $(0, 0)$ and at (h, k)

The following expectation is common to both the Functions and Relations and Functions courses.

- OC3.05 use graphing technology effectively (e.g., use appropriate menus and algorithms; set the graph window to display the appropriate section of a curve)

Text Page 607

Time Required Functions and Relations: 30 min

Materials and Equipment

- graphing software such as *Zap-a-Graph*
- graphing calculator

Overview

In this section, students use graphing software to graph conics. As well, students review the key features of conics in standard form and are introduced to the standard equation of a hyperbola, which leads to the next section.

TECHNOLOGY

Zap-a-Graph requires that students know what type of graph they wish to plot before they enter the equation. This requirement will develop students' abilities to identify the standard forms of equations of various conics.

Management Options

Groups – Students could work in pairs, depending on the availability of computers. It is important that students take turns using the software while they follow the steps in the text. For the *Practice* questions, one student could begin using the software while the other records the results. Partners could switch roles, perhaps for alternate questions.

Teacher Demonstration – You might begin the lesson by demonstrating how to open and start working with *Zap-a-Graph*.

Independent Work – Students could work individually at the computer using *Zap-a-Graph* and follow the steps in the text. Then they could work on the *Practice* questions, again using *Zap-a-Graph*, and record their results in their notebooks.

TEACHER INTERVENTION

Circulate while students are working on the computers. Once students have finished the first *Practice* question, stop the class and take up some key points of the question orally.

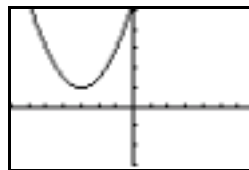
Practice 7.8U

Questions with a Functions and Relations Focus:

1–3

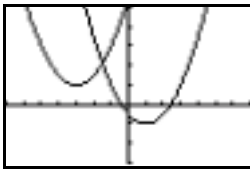
3. (a) translation of 3 units left and 2 units up

$$(x + 3)^2 = 2(y - 2)$$



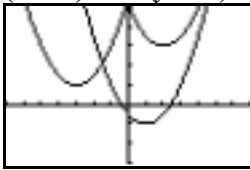
- (b)** translation of 1 unit right and 1 unit down

$$(x - 1)^2 = 2(y + 1)$$



- (c)** translation of 2 units right and 3 units up

$$(x - 2)^2 = 2(y - 3)$$



- (d)** translation of 1 unit left and 5 units down

$$(x + 1)^2 = 2(y + 5)$$

