

# Lesson 8 Teaching Portal Materials

## Episode Supports

### Episode 1: Making Sense

#### Episode Description

Sasha and Keoni make sense of parameters that can change the vertex of a parabola on the coordinate grid. They also revisit what they already know about how the  $p$ -value changes the shape of the graph.

#### Focus Questions

For use in a classroom, pause the video and ask these questions:

1. [Pause the video at [3:54](#)]. What is happening to the directrix as the value of  $k$  changes?
2. [Pause the video at [3:54](#)]. What are the coordinates of the focus of the parabola in red?

#### Supporting Dialogue

Focus students' attention on precision of language by attending to Sasha's justification:

- Sasha provides justification for why the directrix does not move when the vertex moves to  $(7,0)$  [[6:18-6:24](#)]. Can someone revoice her idea?
- Can someone revoice Sasha's idea using mathematical vocabulary? What about someone else? Is there another way to revoice her idea?

#### Math Extensions

1. Use the link to [GeoGebra applet](#) to explore how you can change the position of a parabola so that the  $p$ -value is still 3 and the vertex is at  $(-5, 0)$ . What are the coordinates of the focus for this parabola? How do you know?
2. How can you adjust the  $p$ -value and the  $h$ -value to get a parabola with a vertex at  $(7,0)$  and a focus at  $(7, 2)$ ? How do you know? Where is the  $p$ -value on the graph?

GeoGebra applet URL: <https://tube.geogebra.org/material/simple/id/1420529>

“Lesson 8 Episode 1 Teacher Support Materials” by MathTalk is licensed under CC BY-NC-SA 4.0

