

## Lesson 9 Teaching Portal Materials

### Episode Supports

#### Episode 7: Exploring

##### Episode Description

In the last episode Sasha and Keoni determined the distances of the sides of a right triangle on a general parabola with vertex  $(h, k)$  and distance  $p$  from the vertex to the focus. Next they derive the equation for the parabola by substituting those distances into the Pythagorean Theorem.

##### Focus Questions

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

1. [Pause the video at **0:50**]. Sasha and Keoni just wrote down a long algebraic equation. Where did it come from?
2. [Pause the video at **1:45**]. Sasha said that they know where they are going. What do we think? What equation do you predict will emerge as they solve for  $y$ ?

##### Supporting Dialogue

Provide opportunities to for students to revoice mathematical ideas. Ask a few students to revoice the strategies used in this episode:

Revoice Sasha and Keoni's strategies to solve for  $y$ .

##### Math Extensions

A student working on solving for  $y$  simplified an expression as shown below:

$$\frac{2(y - k)(p) + 2(y - k)(p)}{4(y - k)(2p)}$$

Does this work? Does it not work? How do you know?

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