Lesson 9 Teaching Portal Materials

Episode Supports

Episode 6: Making Sense

Episode Description

Sasha and Keoni build on what they have learned in the previous episodes to begin to develop the general equation for *any* parabola with vertex (h, k) and the distance *p* from the vertex to the focus.

Students' Conceptual Challenges

Sasha found the distance from the focus and the *x*-axis, which $k + p$ [**1:59**]. But she then equated this distance to the focus rather than identifying the coordinate pair that represents the focus.

> ➢ After the teacher asks whether $k + p$ represents the *x*-value or the *y*-value of the focus, Sasha and Keoni represented the focus with a coordinate pair [**2:27**].

Focus Questions

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

1. [Pause the video at **1:34**]. Where is the length *k* on the graph?

2. [Pause the video at **4:18**]. What distance are Sasha and Keoni trying to find here? What is its significance?

3. [Pause the video at **7:25**]. How can you represent the length that Sasha just circled?

Supporting Dialogue

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

- Revoice how you can determine the lengths of the sides of the right triangle.
- Revoice how the lengths in the expressions can be seen on the graph.

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Learning through dialogue

Math Extensions

1. Why is the vertex labeled (h, k)? A general point on the graph is labeled (x, y). Why the difference?