

Lesson 4 Teaching Portal Materials

Episode Supports

Episode 1: Making Sense

Episode Description

Keoni and Sasha make sense of the new situation in which the x-value is given and the y-value needs to be determined (instead of the other way around).

Students' Conceptual Challenges

Students may find it difficult to represent the distance from a point on the parabola to the directrix because the y-value is unknown.

- ➔ After struggling with how to represent the unknown value of y and distances involving y [see [1:29 – 2:05](#)], Sasha and Keoni abandon their approach and instead use the equation that they developed in Lesson 2, which is $b = \sqrt{4y}$ [see [2:06](#)].

Focus Questions

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

1. [Pause the video at [0:58](#)]. Sasha drew a vertical line from the x-axis up to the point on the parabola and then extended the line. How will that line segment be useful for their work?
2. [Pause the video at [1:54](#)]. Keoni said that the length one side of the right triangle is $y - 1$. Where is the distance represented by y? By 1? By $y - 1$?

Supporting Dialogue

Engage your students in a discussion of the video:

- Ask different students to share how the problem posed in this episode is alike and different from the problems from Lesson 3.

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- When one student responds to Focus Question 2, ask two or three other students to restate the first student’s idea.

Math Extensions

Consider the circle below.

1. Find the y-value of points on the circle for x-values of 3, 4, and 2.
2. Find an equation for the y-value of a point on the circle for a general x-value.

