

Lesson 10 Teaching Portal Materials

Episode Supports

Episode 4: Making Sense

Episode Description

Keoni and Sasha examine an equation of a parabola in a different form, $y = x^2 - 4x + 4$. When they look for geometric information, the p -value and vertex are not apparent. They start by rewriting the equation.

Students' Conceptual Challenges

Sasha tries to create something that looks like the parenthesis $(x - h)$ from the vertex form by factoring out an x [1:08 – 1:24].

- When asked if that form is helpful, she quickly realizes this doesn't satisfy the need for a squared term, i.e., like $(x - h)^2$ [1:26 – 1:34].

Focus Questions

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

1. [Pause the video at 1:23]. Is $y = x^2 - 4x + 4$ equivalent to $y = x(x - 4) + 4$? How do you know? Does the re-expressing the equation this way support the goal of finding geometric information?
2. [Pause the video at 2:52]. Explain why the p -value is $\frac{1}{4}$.

Supporting Dialogue

Support the opportunity to revoice the mathematical ideas of others. Ask students to answer the focus questions with their partner. Ask them to prepare their answers to share with the class.



Math Extensions

1. Graph $y = x^2 - 4x + 4$. List and label all of the geometric information.
2. Find and label the “special points.” How did you find them?

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