

## Lesson 4 Teaching Portal Materials

### Episode Supports

#### Episode 5: Reflecting

##### Episode Description

Keoni and Sasha compare the equations  $x = \sqrt{4y}$  and  $y = \frac{x^2}{4}$ .

##### Students' Conceptual Challenges

None: Omit

##### Focus Questions

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

1. [Pause the video at **2:01**]. What makes an equation easy to use?
2. [Pause the video at **3:21**]. Which equation would you use to find the b-value when the y-value is 1.5? Why?

##### Supporting Dialogue

Ask students to reflect on the difference between expressions and equations by asking:

- Is there a difference between  $y = \frac{x^2}{4}$  and  $x = \sqrt{4y}$ ?

Create the opportunity for productive disagreement by asking:

- How many of you think that there is a difference? How many think that they are the same? Can I have someone defend how they are the same? What about someone to defend how they are different?

“Lesson 4 Episode 5 Teacher Support Materials” by MathTalk is licensed under CC BY-NC-SA 4.0



## Math Extensions

Physics uses mathematical equations to express known properties and theories.

1. Isaac Newton derived a universal law of gravitation. The equation is given below.  $F$  stands for the force between two objects.  $G$  is the gravitational constant.  $m_1$  is the mass of the first object.  $m_2$  is the mass of the second constant.  $d$  is the distance between the two objects. Rewrite the equation be solving for  $d$ . How would this form of the equation be helpful?

$$F = G \frac{m_1 m_2}{d^2}$$

2. Now solve the equation for  $m_1$ . How would this form of the equation be helpful?

“Lesson 4 Episode 5 Teacher Support Materials” by MathTalk is licensed under CC BY-NC-SA 4.0

