Today's Materials

- calculator
- pencil
- notebook
- glue

Decomposing Bases for Area

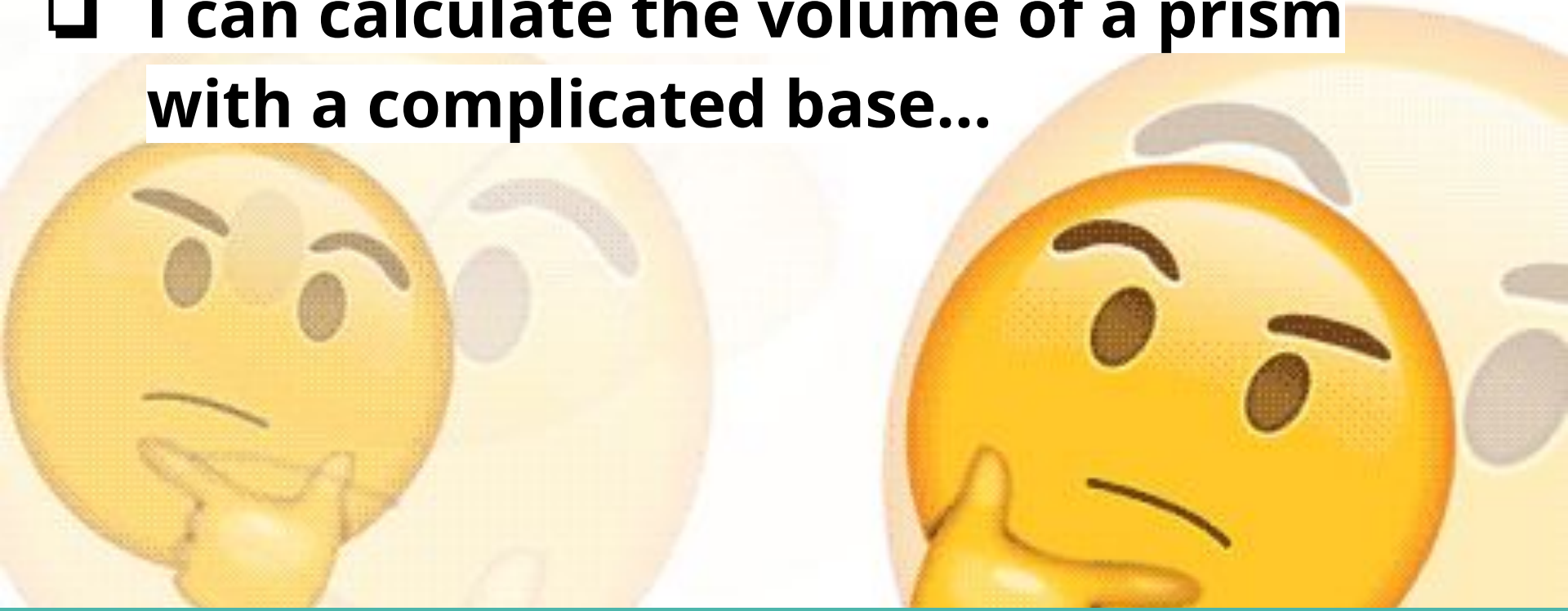
Lesson 13

CCSS Standards: Addressing	• 7.G.A.3 • 7.G.B.6

Let’s look at how some people use volume!

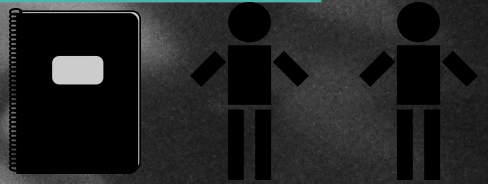
Today's Goal

- ❑ I can calculate the volume of a prism with a complicated base...



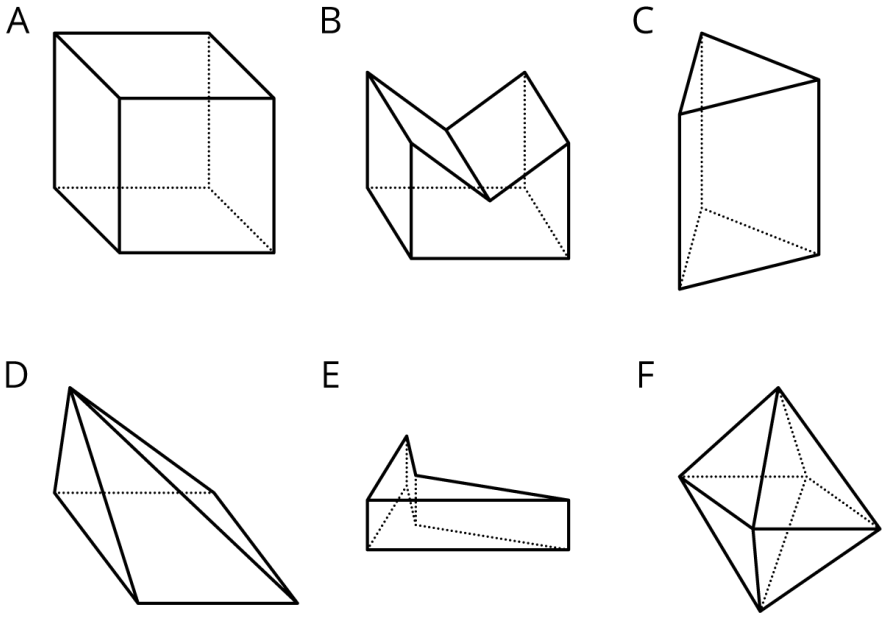
Are These Prisms?

Warm Up



Are these prisms?

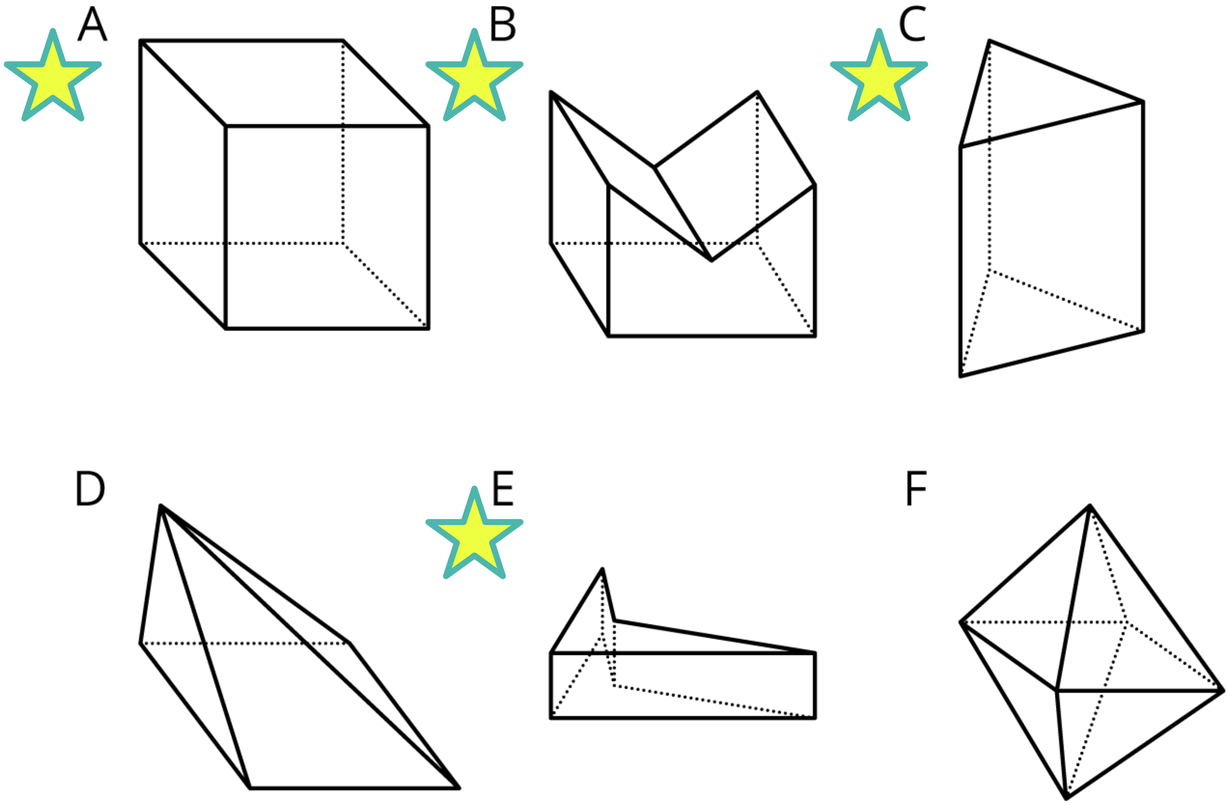
1. Which of these solids are prisms? Be prepared to explain how you know.
2. For each of the prisms, what does each base look like?
   a. Shade one base for each prism.
   b. Draw a cross section of the prism parallel to the base.



Begin with Quiet Think Time. (2 min.)
Share your thinking with a partner.

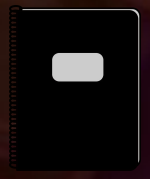
Which of these solids are prisms?

Draw a cross-section of the prism parallel to the base.



A Box of Chocolates

Activity 1



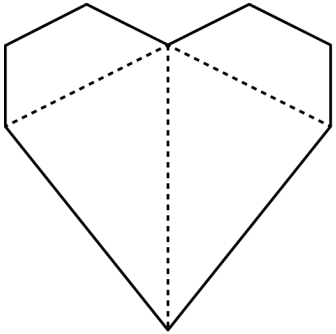
For this task, this is what the heart-shaped chocolate box looks like!

Begin working with
Quiet Think Time. (3 min.)

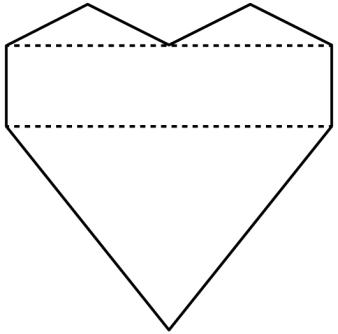
You will eventually work as a team as you follow the activity's directions.

Whose method could not be used? Why not?

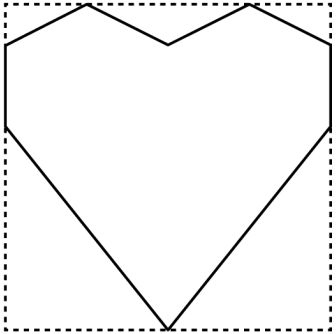
Lin's Plan

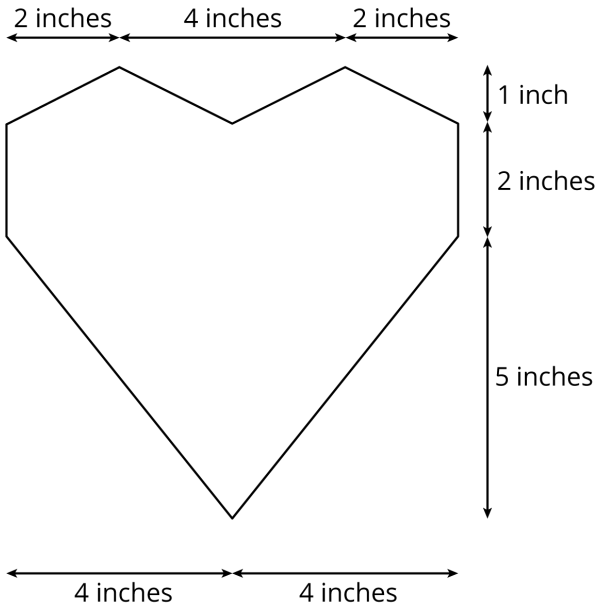


Jada's Plan



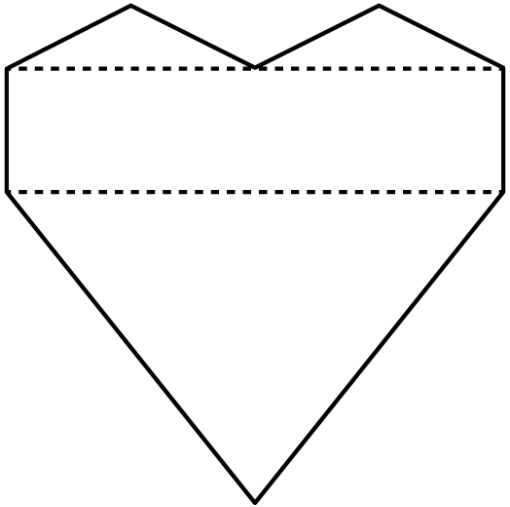
Diego's Plan



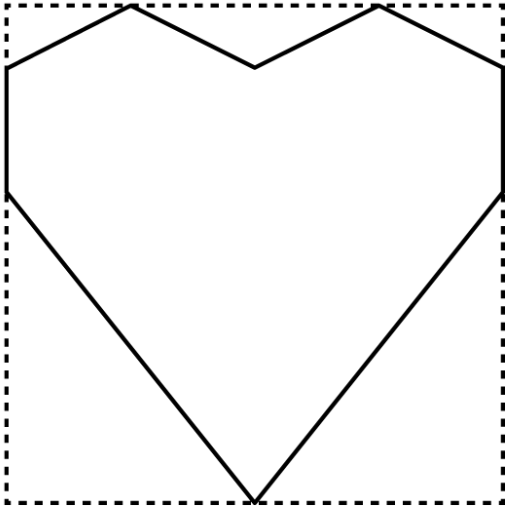


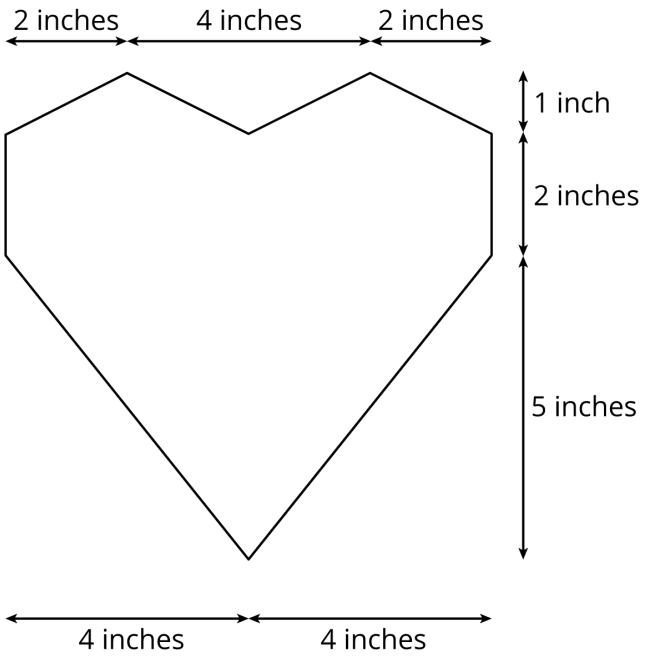
How did you find the areas of the base?

Jada's Plan



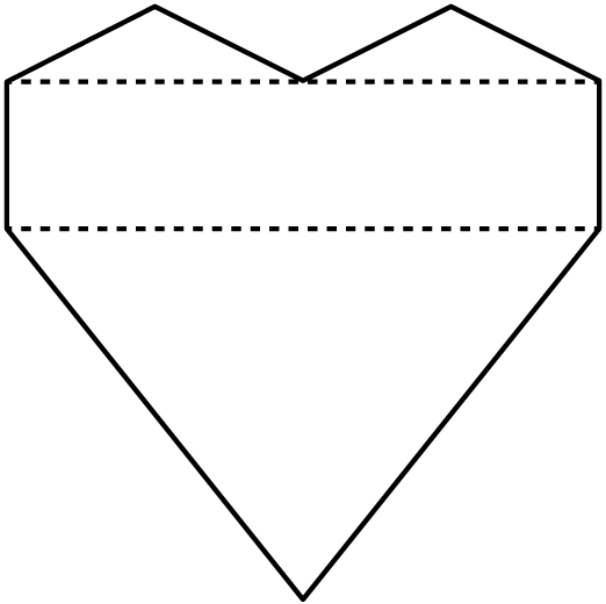
Diego's Plan



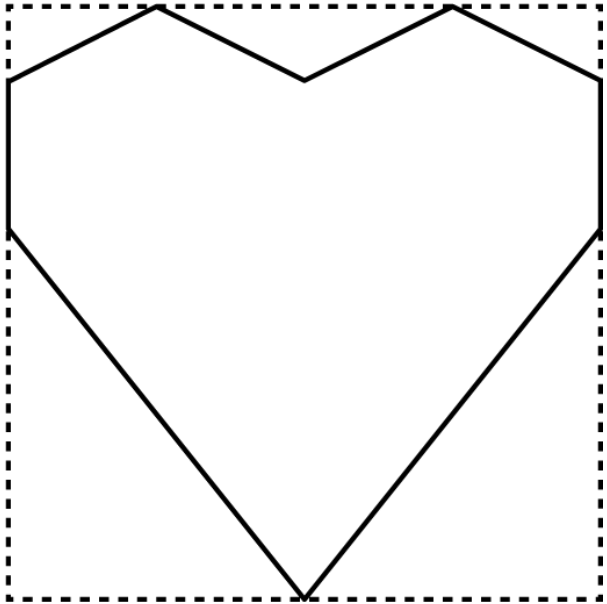


What was different about the base of this figure in comparison to other bases we have worked with?

Jada's Plan

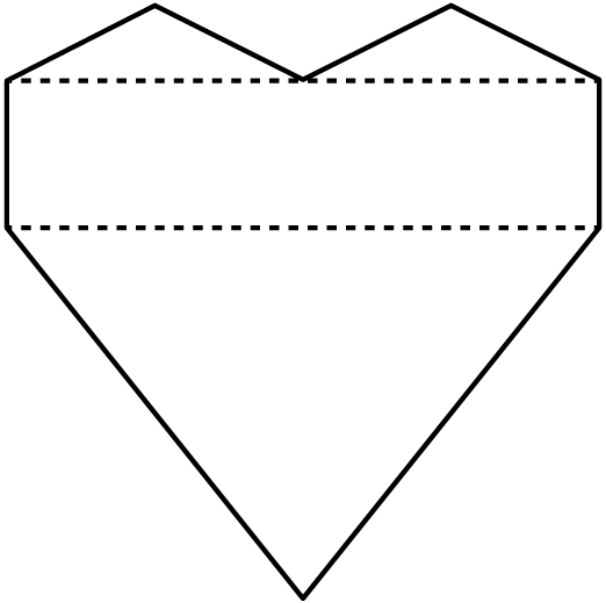


Diego's Plan

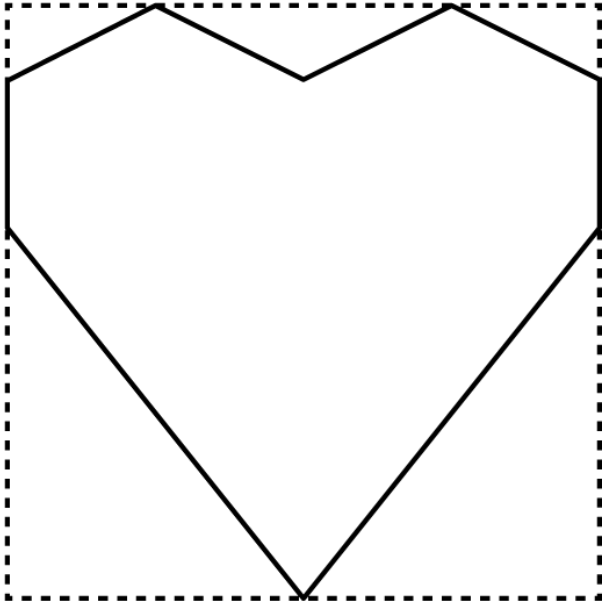


What was the first thing you did to find the volume?

Jada's Plan



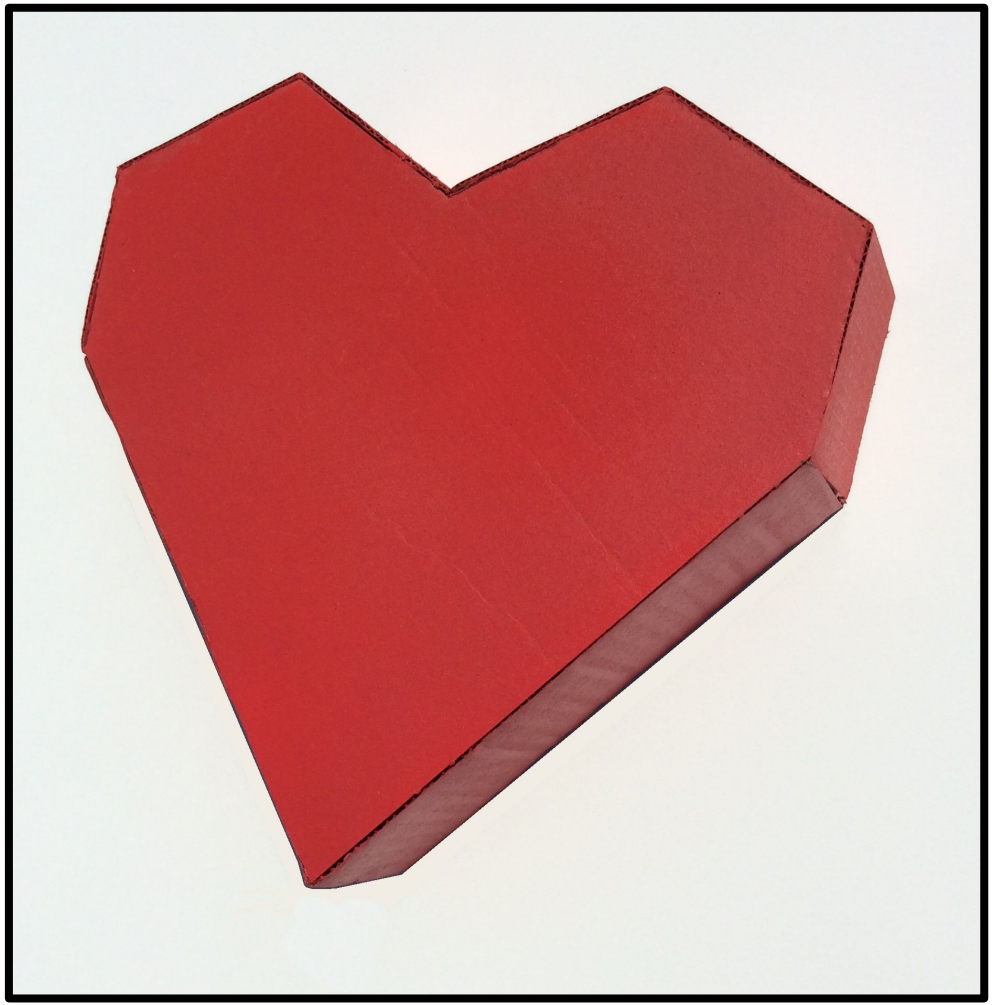
Diego's Plan



Why would a chocolatier want to know the volume of a heart-shaped box like this?

We will encounter figures that have non-rectangular bases in future activities or lessons.

It will be important to think about different strategies to calculate the area of the base.

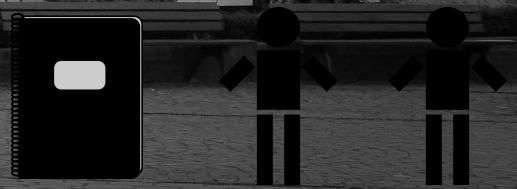


“Are you ready for more?”

The box has 30 pieces of chocolate in it, each with a volume of 1 in^3. If all the chocolates melt into a solid layer across the bottom of the box, what will be the height of the layer?

Another Prism

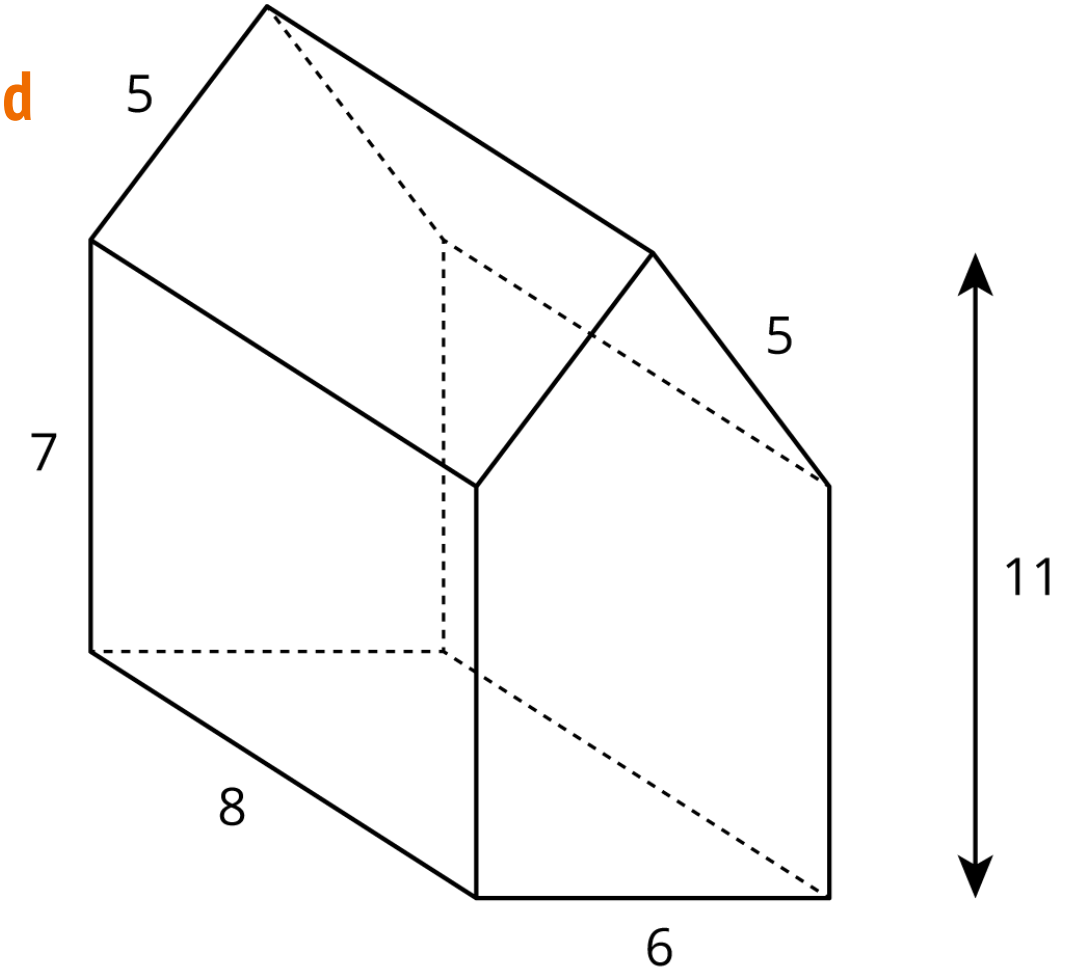
Activity 2



A house-shaped prism is created by attaching a triangular prism on top of a rectangular prism.

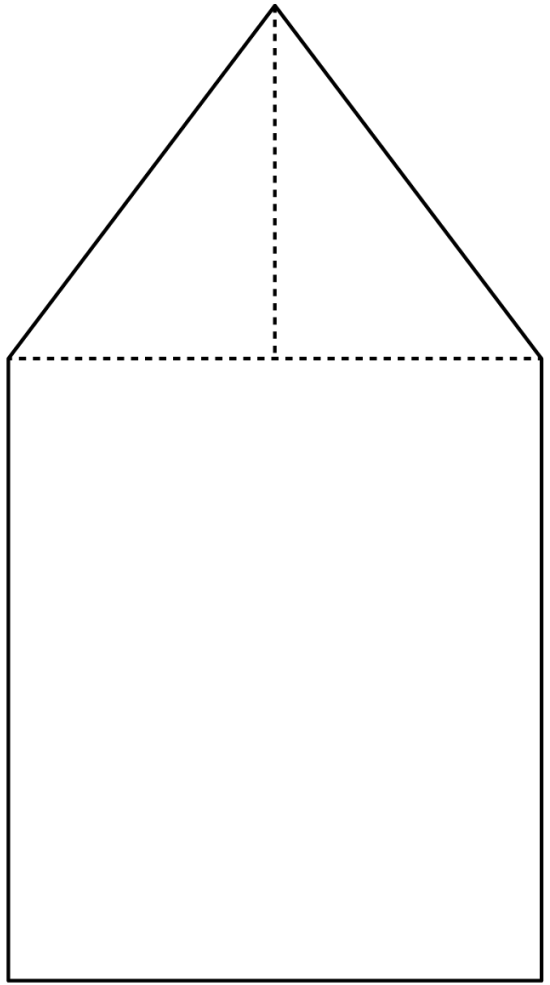
Begin with Quiet Work Time (2 min.)

Discuss your thinking with your team.

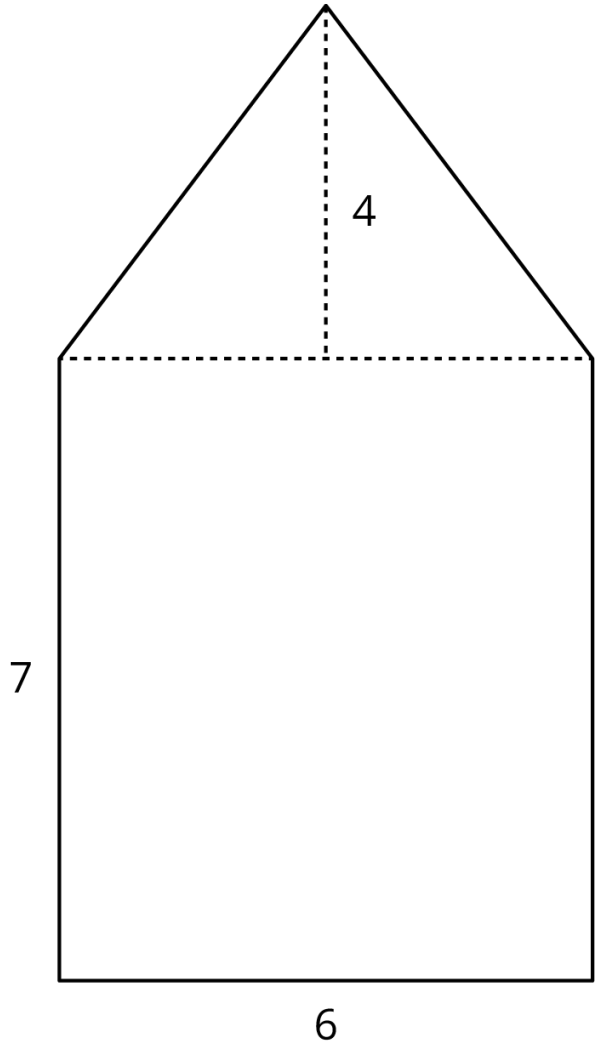


What does the base of your prism look like?

How did you label the dimensions?

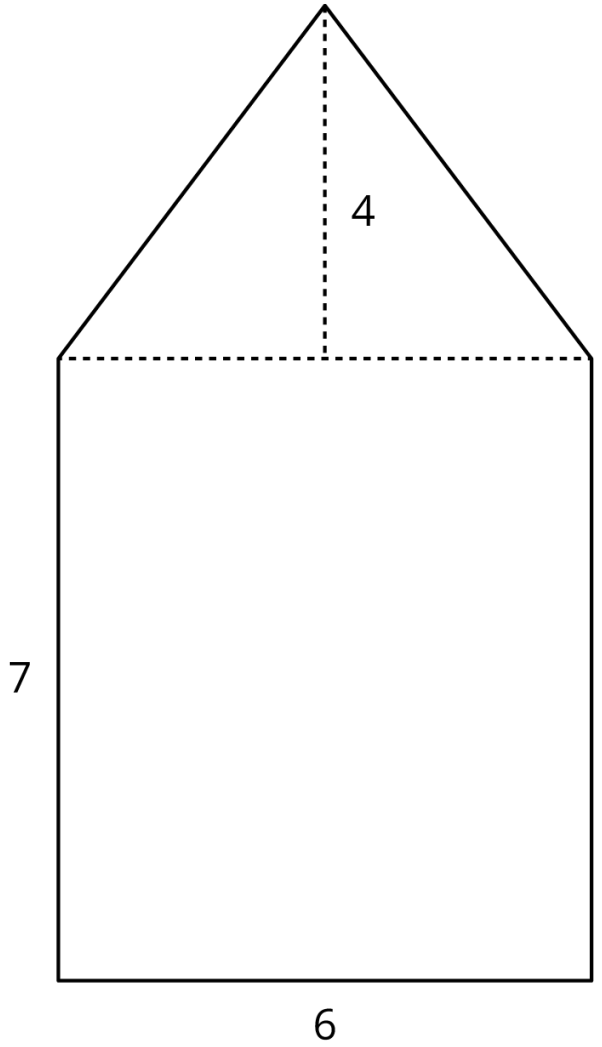


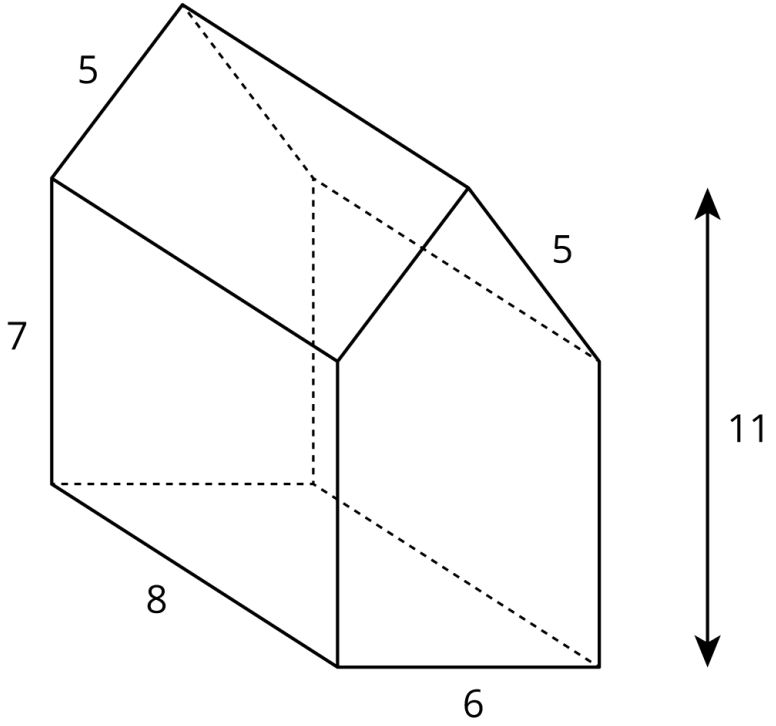
What is the area of the base?



How did you use the area of the base to calculate the volume of the figure?

What is the volume of the prism?

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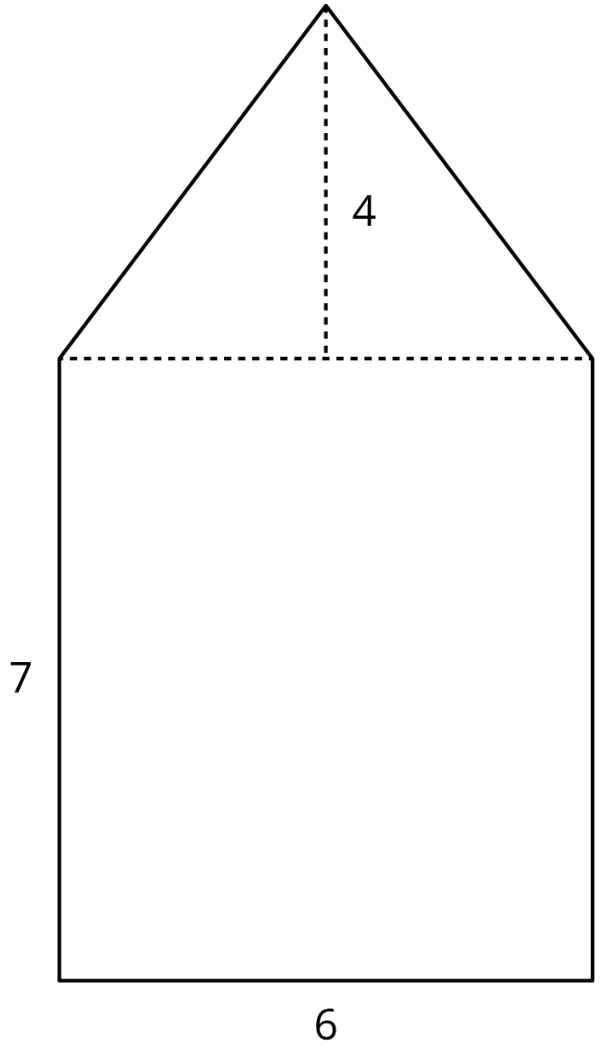
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7
6

When the base is not a rectangle or a triangle, what are some methods for finding the area?

Cut the base apart into rectangles into triangles.

Today's Goal

- I can calculate the volume of a prism with a complicated base by decomposing the base into quadrilaterals or triangles.

Volume of a Pentagonal Prism

Cool Down