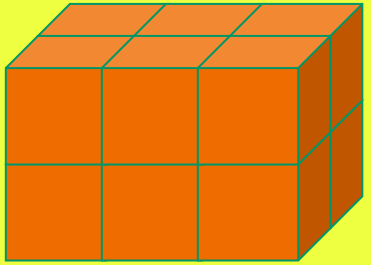
Volume as Expressions

Materials needed: pencil, book

Let’s write expressions for the volume of rectangular prisms.



Warm-Up True or False: Parentheses or No

Determine if the following equations are true or false. Give me a signal when you know whether the equation is true and can explain how you know.

$(4 \times 2) \times 5 = 4 \times (2 \times 5)$

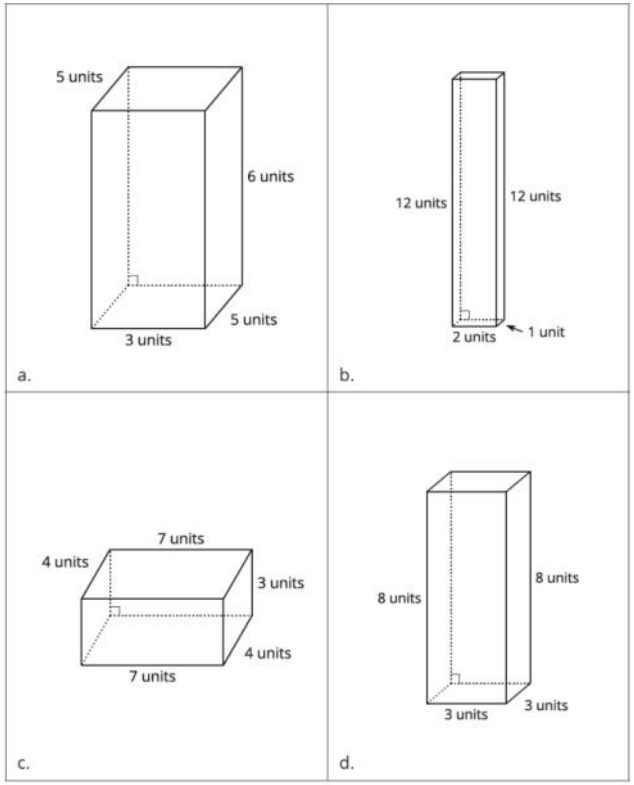
$(2 \times 5) \times 4 = 2 \times 20$

$5 \times 4 \times 2 = 10 \times 40$

Activity 1 Card Sort: Match the Equation

What do you notice about the prisms on these cards?

When the measurements are in units, the cubes we use to fill the prism are called **cubic units**.



Activity 1 Card Sort: Match the Equation

In this activity, you will sort some cards into categories of your choosing. When you sort the cards, you should work with your partner to come up with categories.

Now work with your partner to match each prism with the expressions that represent the volume.

Activity 1 Synthesis

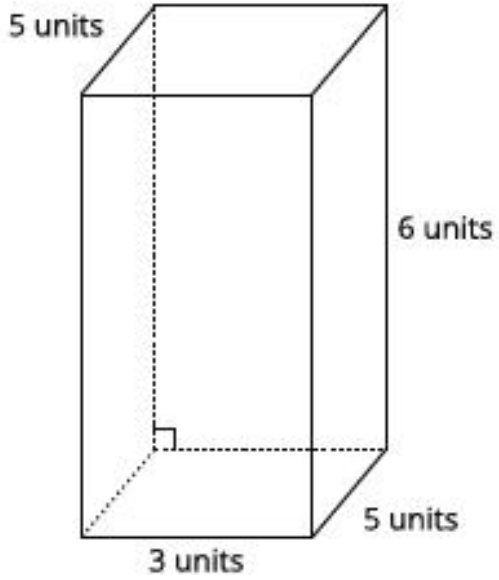
How do these expressions represent the volume?

6 x (5 x 3)

(6 x 5) x 3

15 x 6

(5 x 3) x 6 = 16 x 5 Where do we see this equation in the diagram?

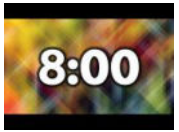


Activity 2 A Tale of 2 Tables

Partner A complete Table 1.

Partner B complete Table 2.

Compare your tables and discuss:



a. What do the tables have in common?

b. What is different about the tables?

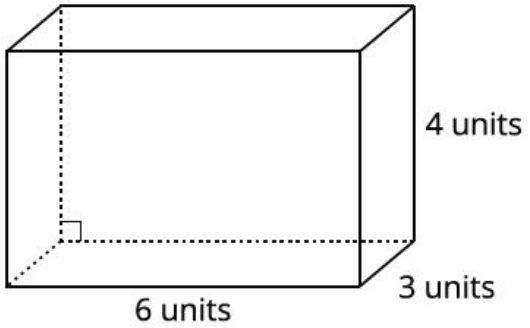
Activity 2 Synthesis

6 x 3 x 4 Why does this expression represent the volume of prism a?

(6 x 3) x 4 How does this expression show the volume of prism a?

Which expression could you use to find the volume using the 3 unit by 4 unit base?

Prism a



(6 x 3) x 4 = (3 x 4) x 6 How do you know the equation is true?

Activity 3 Two Truths and a Lie

You and your partner are going to play 2 truths and a lie with rectangular prisms.

You will each write expressions, some true and one false, to represent the volume of two prisms and then trade to answer some questions.

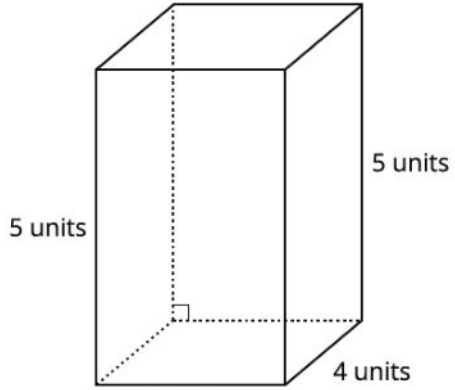
One partner use Prisms A and C and the other partner uses Prisms B and D.

Activity 3 Synthesis

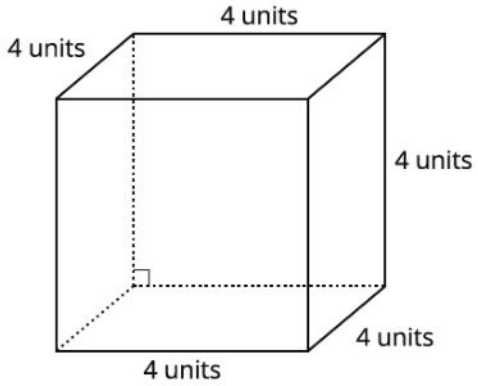
Which expression represented the volume of the prism in cubic units? Which did not?

How did you decide the expressions that did not represent the volume of a rectangular prism?

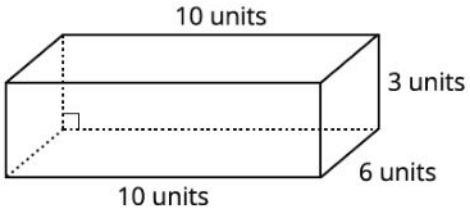
A.



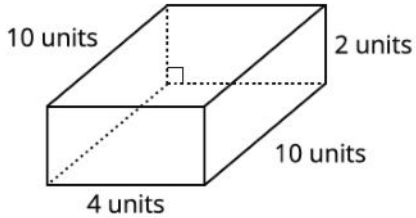
B.



C.



D.

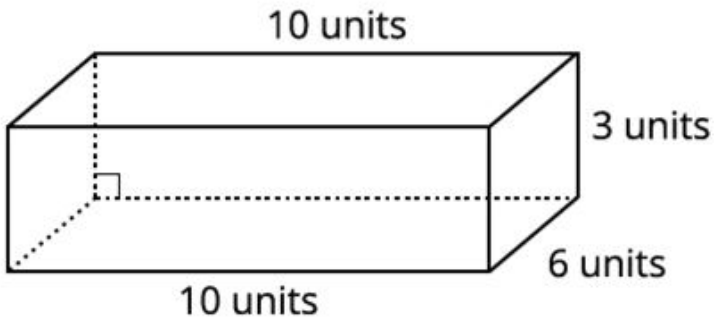


Lesson Synthesis

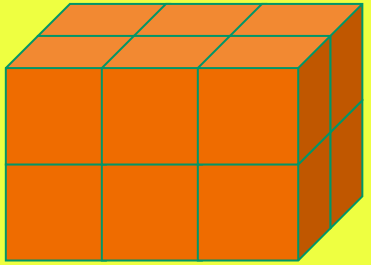
Which expressions could we write to represent the volume of this prism in cubic units?

For each expression, explain where they see the expression in the prism.

C.



Let’s write expressions for the volume of rectangular prisms.



Cool-Down

Choose the Expression

Complete the cool-down by yourself.