LESSON MAKER PRO

Geometry Build Lab

Build, split, and check geometric measures.

GRADE 7 · TEKS 7.9

7.9 "Expressions, equations, and relationships. The student applies mathematical process standards to solve geometric problems. The student is expected to: solve problems involving the volume of rectangular prisms, triangular prisms..."

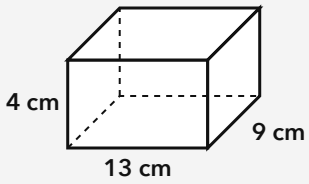
NAME _____ DATE _____

CHOOSE AND CHECK

Break a geometry situation into simple parts. For a prism, V=Bh. For a pyramid, V=Bh/3, and add face areas from a net for surface area. Use $A=\pi r^2$ and $C=2\pi r$ for circles.

WORKED EXAMPLE

A museum display case is a rectangular prism 13 cm long, 9 cm wide and 4 cm high. Find its volume.



1. Use V=lwh.
2. V=13×9×4.
3. V=468 cm^3.
4. Check: volume uses cubic units.

Answer: 468 cm^3

PRACTICE 4 problems

1 A maker packs a triangular-prism box. Its triangular base has b=5 cm and h=6 cm. The box is 10 cm long. Plan with a formula, then find the volume.

ANSWER _____

2 A display is a rectangular pyramid with a 10 cm by 6 cm base and height 15 cm. A student says its volume is 600 cm^3. Check the claim and state the correct volume.

ANSWER _____

3 An art club cuts a circular sticker with radius 5 cm. Find its area and circumference in terms of π. Check that the units are correct.

ANSWER _____

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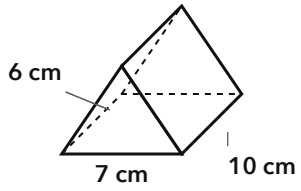
4 An L-shaped shelf starts as an 11 cm by 8 cm rectangle. A 2 cm by 5 cm corner is cut away. Explain the subtraction plan and find the shelf area.

ANSWER _____

_____

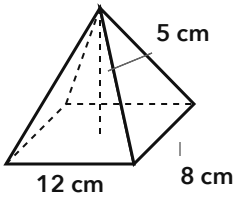
APPLY IT Show your work

1 The triangular-prism prize bin shown has a triangular base with base 7 cm and perpendicular height 6 cm, and prism length 10 cm. Find its capacity and briefly explain why the base area is halved.



ANSWER _____

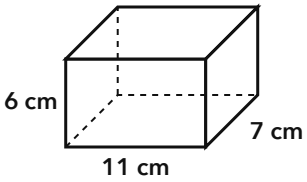
2 The rectangular-pyramid trophy shown has a 12 cm by 8 cm base and perpendicular height 5 cm. Find its volume. A teammate multiplied lwh; explain why that result is not final.



ANSWER _____

CHALLENGE One step up

The closed rectangular-prism prop shown is 11 cm long, 7 cm wide and 6 cm high. Sketch or list the faces in its net. Find the total cardboard area and explain how the net checks your total.



WORK SPACE AND ANSWER

Geometry Build Lab

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A maker packs a triangular-prism box. Its triangular base has b=5 cm and h=6 cm. The box is 10 cm long. Plan with a formula, then find the volume.	**150 cm^3**
2	A display is a rectangular pyramid with a 10 cm by 6 cm base and height 15 cm. A student says its volume is 600 cm^3. Check the claim and state the correct volume.	**No; 300 cm^3.**
3	An art club cuts a circular sticker with radius 5 cm. Find its area and circumference in terms of π. Check that the units are correct.	**Area = 25π cm^2; circumference = 10π cm.**
4	An L-shaped shelf starts as an 11 cm by 8 cm rectangle. A 2 cm by 5 cm corner is cut away. Explain the subtraction plan and find the shelf area.	**78 cm^2; subtract 2×5 from 11×8.**

PART 2 · APPLY IT

1. **210 cm^3; the triangular base is half of a 7 cm by 6 cm rectangle.** Find the triangular base area, 7×6/2=21 cm^2. Multiply by the 10 cm prism length.
2. **160 cm^3; a pyramid has one-third the volume of a prism with the same base and height.** The base area is 12×8=96 cm^2. Multiply by 5, then take one-third.

CHALLENGE

370 cm^2; add two 11 cm by 7 cm faces, two 11 cm by 6 cm faces, and two 7 cm by 6 cm faces.

Accept equivalent formulas and correct unit notation. For explanations, accept any clear statement that a triangular base is half a rectangle or that a pyramid uses one-third of the matching prism volume.