LESSON MAKER PRO

Volume Builders

Find the space inside prisms and pyramids.

GRADE 7 · TEKS 7.9.A

7.9.A "solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids;"

NAME _____ DATE _____

BUILD THE VOLUME

Find the area of the base first. A prism's volume is base area x height, while a pyramid's volume is 1/3 x base area x perpendicular height, so write the answer in cubic units.

WORKED EXAMPLE

Find the volume of a rectangular prism that is 9 cm long, 7 cm wide, and 5 cm high.

1. Base area = 9 x 7 = 63 square cm.
2. Volume = 63 x 5.
3. Volume = 315 cubic cm.

Answer: 315 cm^3

PRACTICE 6 problems

1 Find the volume of a rectangular prism that is 4 cm by 6 cm by 12 cm.

ANSWER _____

2 A triangular prism has a triangular base with base 8 cm and height 10 cm. The prism is 3 cm long. Find its volume.

ANSWER _____

3 Find the volume of a rectangular pyramid with a base that is 12 cm by 4 cm and a vertical height of 18 cm.

ANSWER _____

4 A triangular pyramid has a triangular base with base 14 cm and height 6 cm. Its vertical height is 10 cm. Find its volume.

ANSWER _____

5 A rectangular prism has a volume of 288 cm^3. Its base is 6 cm by 8 cm. Find the height of the prism.

ANSWER _____

6 A triangular prism has a volume of 216 cm^3. Its triangular base has base 12 cm and height 6 cm. Find the length of the prism.

ANSWER _____

APPLY IT Show your work

1 At a school game night, a triangular-prism snack display has a triangular base with base 16 cm and height 12 cm. The display is 18 cm long. What volume of space is inside the display?

WORK SPACE

ANSWER _____

2 For an art festival, students build a rectangular-pyramid sand sculpture with a base 18 m by 14 m and a vertical height of 12 m. What is the volume of the sculpture?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A rectangular prism and a rectangular pyramid have the same base, 16 cm by 12 cm. The prism is 14 cm high. The pyramid has the same volume as the prism. What is the pyramid's vertical height?

WORK SPACE AND ANSWER

ANSWER KEY # Volume Builders

GRADE 7 · TEKS 7.9.A

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a rectangular prism that is 4 cm by 6 cm by 12 cm.	**288 cm^3**
2	A triangular prism has a triangular base with base 8 cm and height 10 cm. The prism is 3 cm long. Find its volume.	**120 cm^3**
3	Find the volume of a rectangular pyramid with a base that is 12 cm by 4 cm and a vertical height of 18 cm.	**288 cm^3**
4	A triangular pyramid has a triangular base with base 14 cm and height 6 cm. Its vertical height is 10 cm. Find its volume.	**140 cm^3**
5	A rectangular prism has a volume of 288 cm^3. Its base is 6 cm by 8 cm. Find the height of the prism.	**6 cm**
6	A triangular prism has a volume of 216 cm^3. Its triangular base has base 12 cm and height 6 cm. Find the length of the prism.	**6 cm**

PART 2 · APPLY IT

1. **1,728 cm^3** The triangular base area is 1/2 x 16 x 12 = 96 cm^2. Multiply 96 by 18 to get 1,728 cm^3.
2. **1,008 m^3** The base area is 18 x 14 = 252 m^2. Compute 1/3 x 252 x 12 to get 1,008 m^3.

CHALLENGE

42 cm

Accept equivalent volume notation, such as cubic centimeters or cm^3. For pyramids, accept work that finds the base area first and then divides the base-area-times-height product by 3.