

Brief Constructed Response

Look at the following solids. Tawana says they are both prisms. Jeanann says only Figure A is a prism.

Figure A

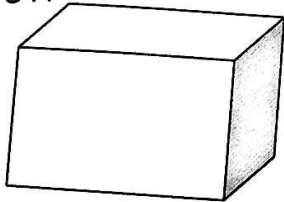
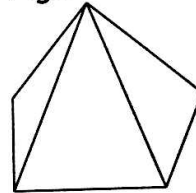


Figure B



Part A

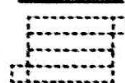
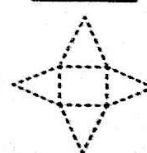
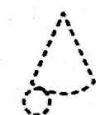
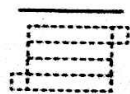
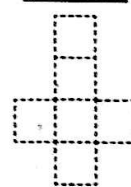
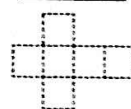
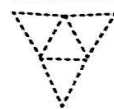
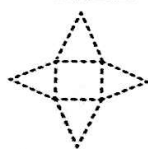
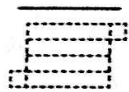
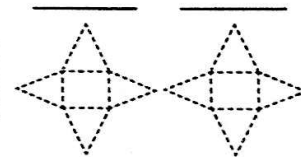
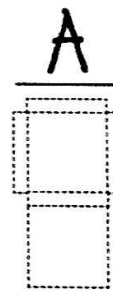
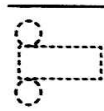
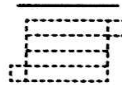
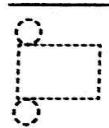
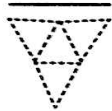
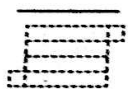
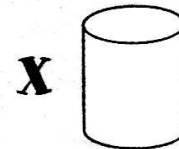
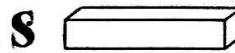
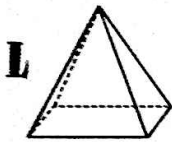
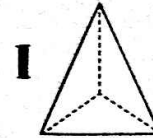
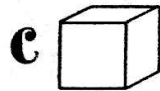
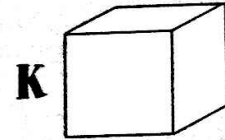
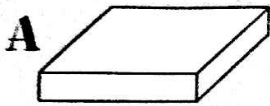
Which student is correct?

Part B

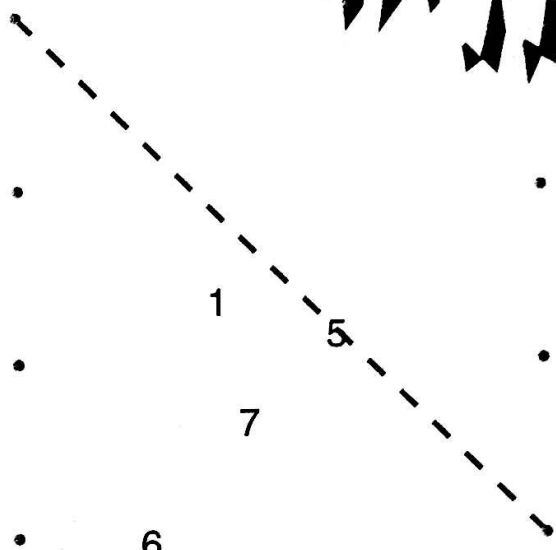
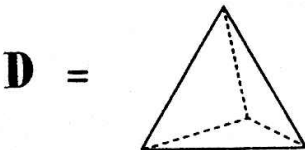
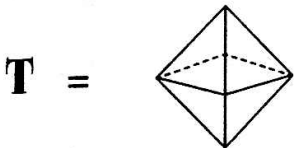
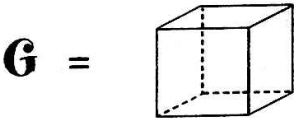
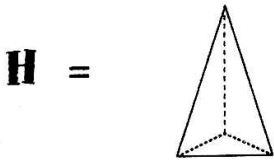
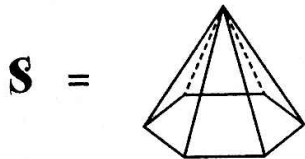
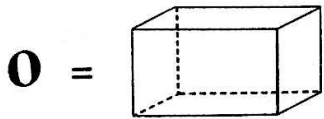
Use what you know about solids to explain why your answer is correct. Use numbers and/or words in your explanation.

Tongue Twister

Look at each three-dimensional figure in the box. If you were to cut along each edge and lay the faces out flat, you would have a two-dimensional shape called a *net*. Write the corresponding letter for each three-dimensional figure above its net. The letters will spell out a tongue twister. Try to say it fast three times.



Draw a straight line from each figure on the left to the correct number of faces that figure has. Each line will go through a number. Write the corresponding letter on the line above the number. The letters will answer the question.



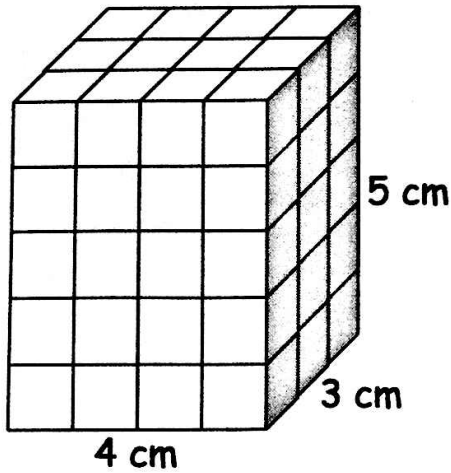
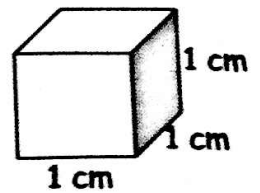
- 4 faces
- 5 faces
- 6 faces
- 7 faces
- 8 or more faces

_____ _____ _____ _____ 0 _____ _____

1 2 3 4 5 6 7

Volume of a Rectangular Prism

Volume is the amount of space inside a 3-dimensional figure. It is measured in cubic units. A cubic centimeter (cm^3) is a cube that is 1 cm wide 1 cm long, and 1 cm high.



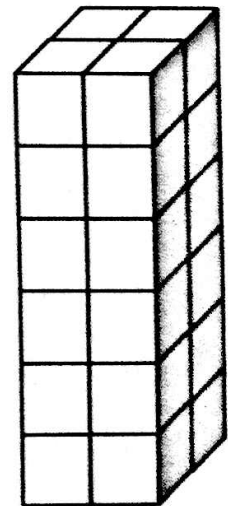
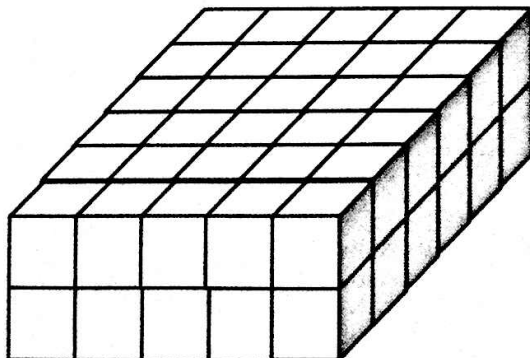
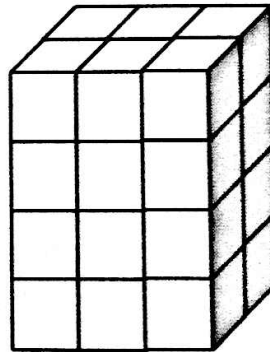
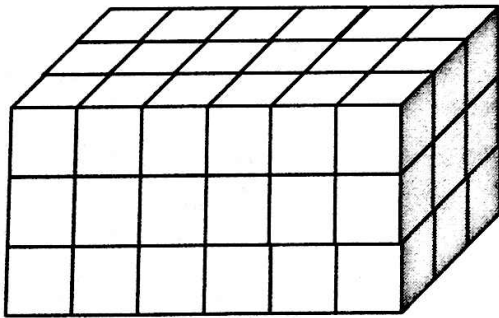
Volume of a rectangular prism is length \times width \times height.

The volume would be

$$4 \text{ cm} \times 3 \text{ cm} \times 5 \text{ cm} = 60 \text{ cm}^3$$

If you look at each layer, there would be 12 cubes in each. There are 5 layers, so that would make a total of 60 cubes.

Find the volume of each of the following.



A **rectangular prism** is a solid figure that has three sets of parallel congruent sides shaped like rectangles. The **volume** of a solid figure is the measure of the space it occupies. You can find the volume of a rectangular prism with the following formula.

Volume of a Rectangular Prism

Find the volume (V) of a rectangular prism by multiplying the length (ℓ), the width (w), and the height (h).

$$V = \ell wh$$

EXAMPLE

What is the volume of a rectangular prism with a length of 7 meters, a width of 4 meters, and a height of 10 meters?

$$V = \ell wh$$

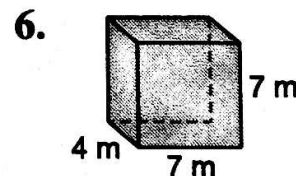
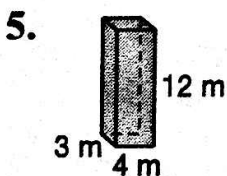
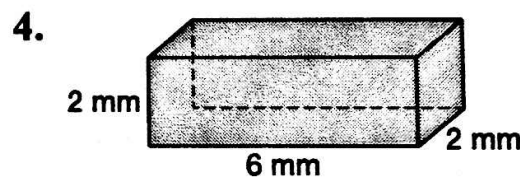
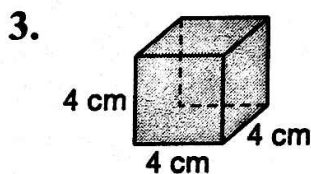
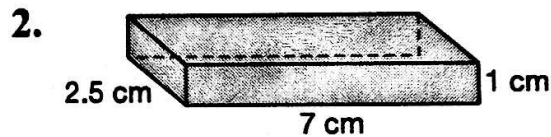
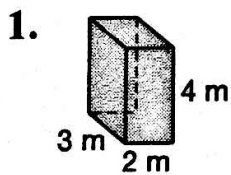
$$V = 7 \times 4 \times 10 \quad \text{Substitute the values for the length, width, and height.}$$

$$V = 280$$

The volume is 280 cubic meters.

PRACTICE

Find the volume of each rectangular prism to the nearest tenth.



7. **Hobbies** The height of a fish tank is 10 inches and the base measures 20 inches by 12 inches. What volume of water can the tank hold when full?

8. **Standardized Test Practice** A 50-pound bag of peanuts is 2 feet by 4 feet by 1 foot. If a 50-cubic-foot space is available for storing the bags, how many can be stored?

A 5

B 6

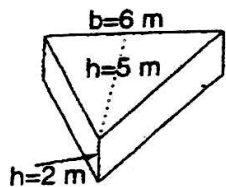
C 7

D 8

Name _____

Volume of a Triangular Prism

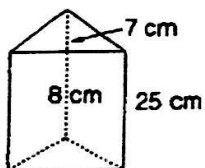
To find the volume of a triangular prism, use the formula **Volume = B • h**, where B is the area of the base of the prism and h is the height of the prism. The base of a triangular prism is a triangle.



Step #1 Area of the Base	Step #2 Volume
Base = $\frac{1}{2} \cdot \text{base of triangle} \cdot \text{height of triangle}$	Volume = Base • height
Base = $\frac{1}{2} \cdot 6 \text{ m} \cdot 5 \text{ m}$	Volume = $15 \text{ m}^2 \cdot 2 \text{ m}$
Base = $\frac{1}{2} \cdot 30 \text{ m}^2$	Volume = 30 m^3
Base = 15 m^2	

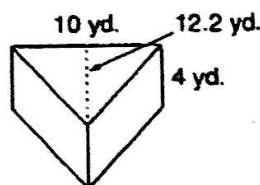
Find the volume.

A.



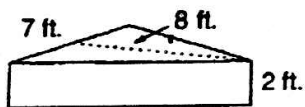
V = _____

B.



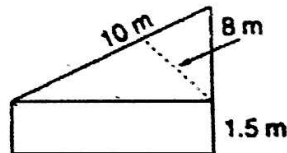
V = _____

C.



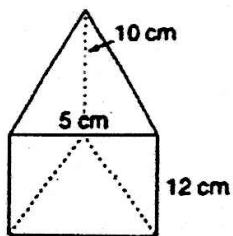
V = _____

D.



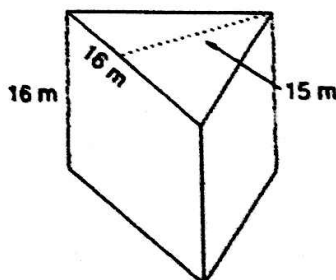
V = _____

E.




V = _____

F.



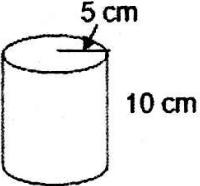
V = _____

VOLUME OF CYLINDERS



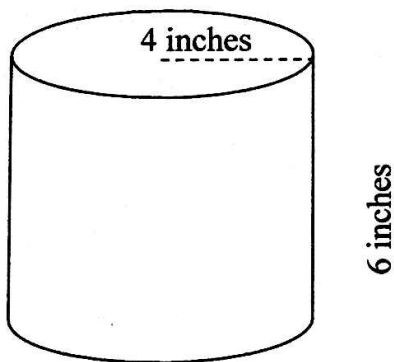
Volume = area of base • height
Volume = $\pi r^2 h$
** The base is a circle, so
the area of a circle is πr^2

Example:

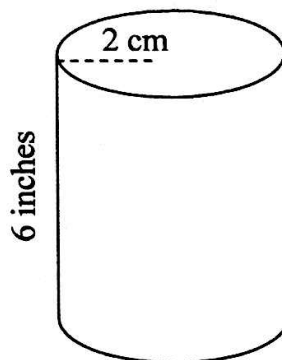


Volume = $\pi r^2 h$
Volume = $(3.14) \cdot (5 \text{ cm})^2 \cdot 10 \text{ cm}$
Volume = 785 cm^3

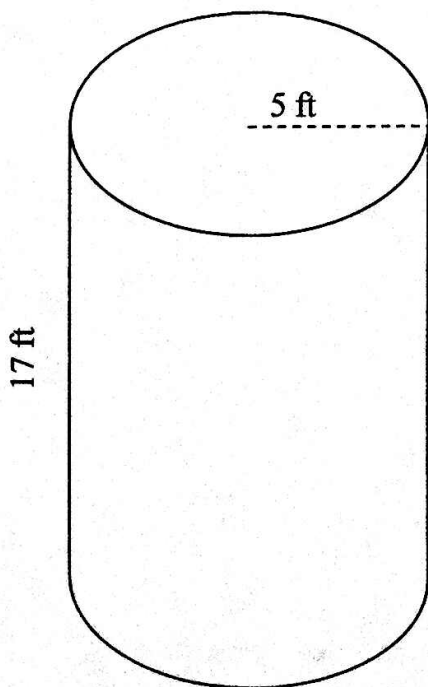
1) Volume = _____



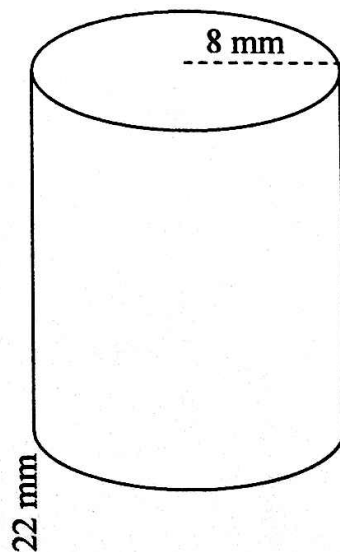
2) Volume = _____



3) Volume = _____

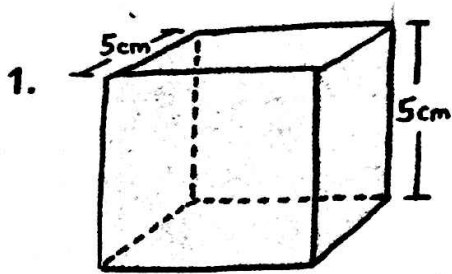


4) Volume = _____

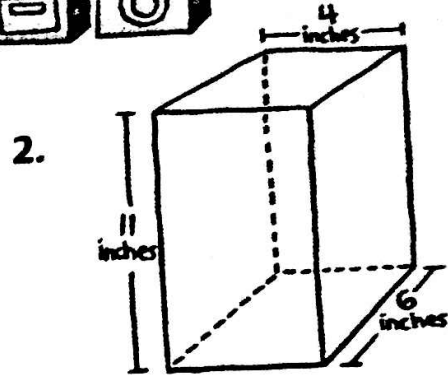


Turn Up the Volume

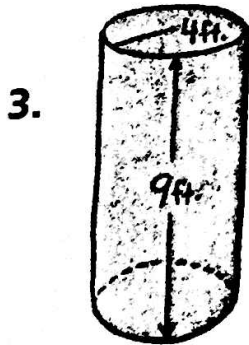
Find the volume.



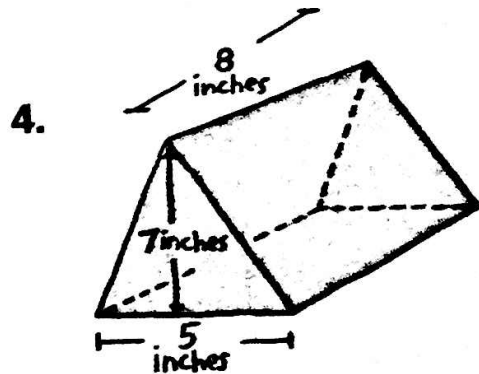
Volume = _____



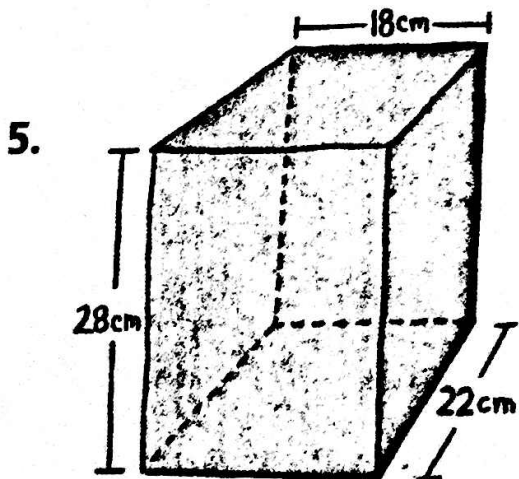
Volume = _____



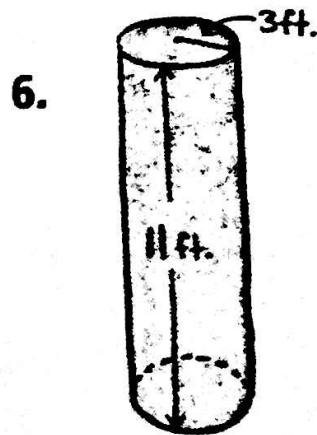
Volume = _____



Volume = _____



Volume = _____



Volume = _____

Mad Science!

Find the volume and use the key to color.

64 = blue 216 = orange 400 = green

