7.9 (A)

Solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids

INTERVENE

<1 min

Fluency Practice

Solve:

$\frac{1}{2}(8)(5) =$

$\frac{8 \times 5}{2} =$

$\frac{1}{3}(6)(2) =$

2 min

Problem Solving Strategies

- **1. Understand the Problem**
  - Read the problem carefully (at least 2 to 3 times)
  - Highlight important information (what do I know)
  - Identify Math Clue words (words that tell you what math operations you need to use)
  - Underline what you need to find
- **2.Plan of Action (how you will solve this problem in steps)**
  - First I will
  - Then I will
  - Next I will
  - Finally, I will
- **3. Show your work in steps (solve using your steps)**
- **4. Check your answer (does my answer make sense? why)**

<3 min

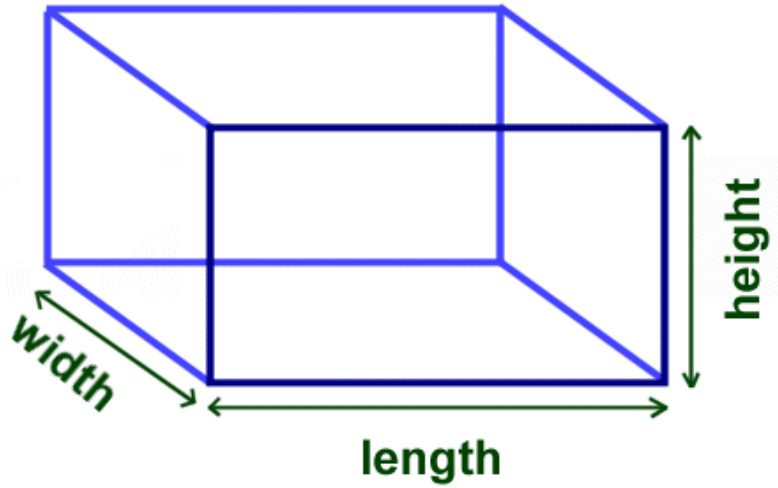
Lesson

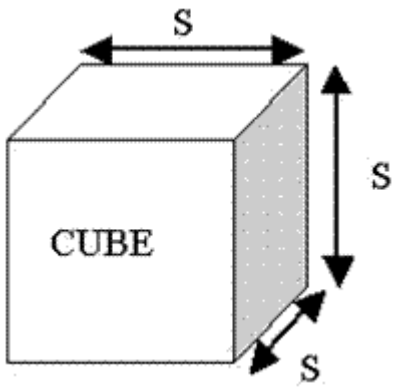
- 1. Identify the shape
- 2. Review the chart for the formula
- 3. Solve and check

1 min

Rectangular Prism & Cube

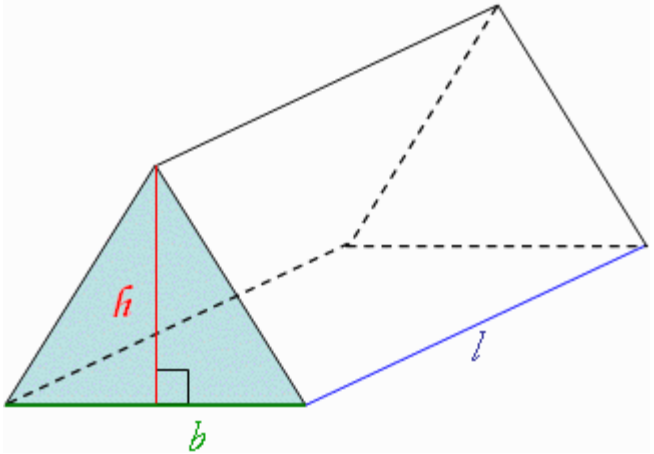
- Rectangular prism - A solid (3-dimensional) object which has six faces that are rectangles.
- Cube - a symmetrical three-dimensional shape, either solid or hollow, contained by six equal squares





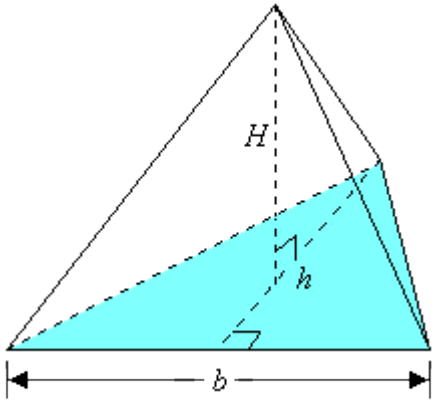
Triangular Prism

- A triangular prism is a prism made up of two triangular bases and three rectangular faces.

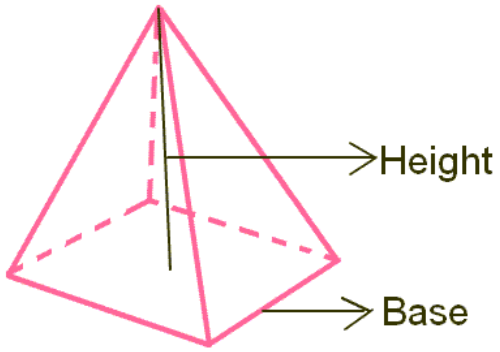


Pyramids

- Triangular Pyramid:
  - a **pyramid** having a **triangular** base.

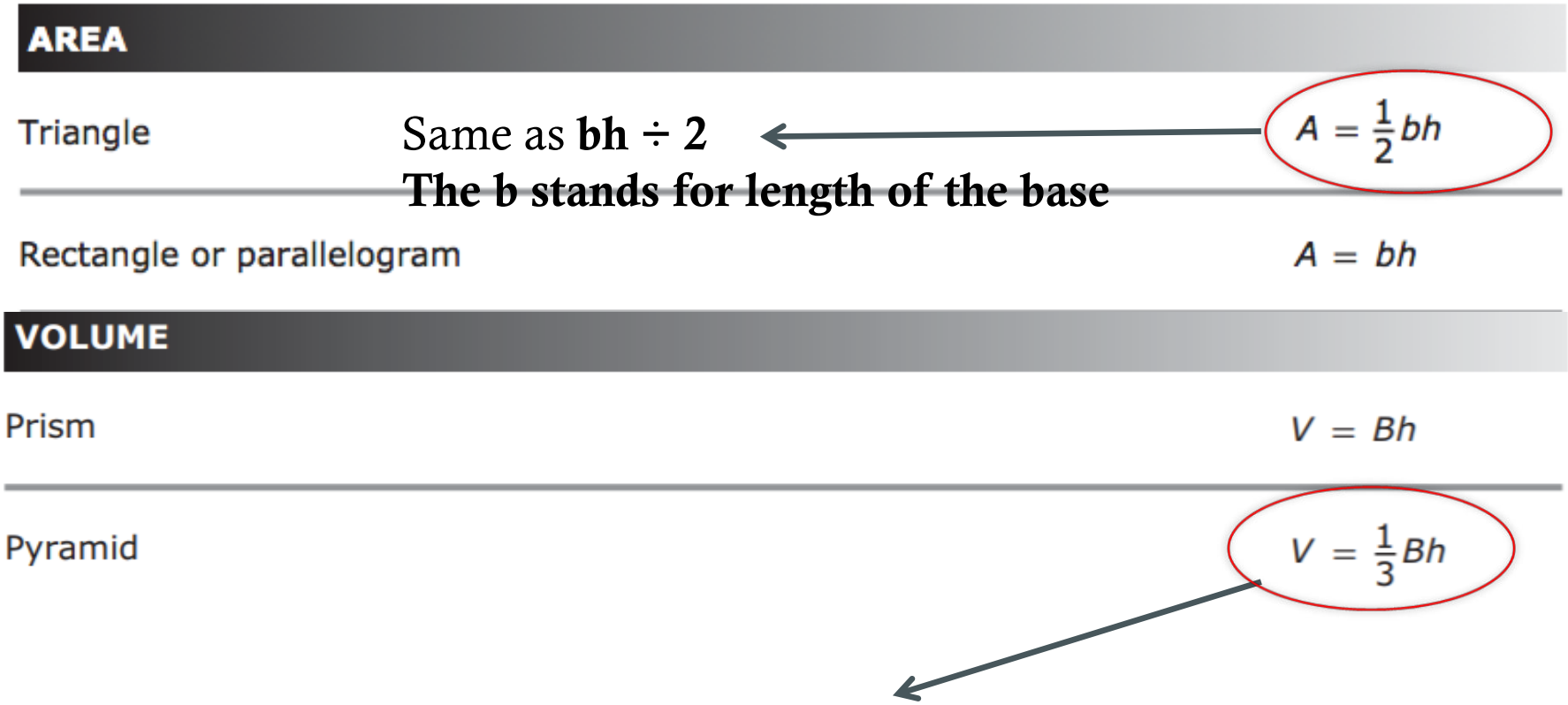


- Square Pyramid
  - a **pyramid** having a **square** base.



Pyramid

Go to the chart given to you!!



AREA	
Triangle	$A = \frac{1}{2}bh$
Rectangle or parallelogram	$A = bh$
VOLUME	
Prism	$V = Bh$
Pyramid	$V = \frac{1}{3}Bh$

Same as **bh ÷ 2**

The b stands for length of the base

Same as **Bh ÷ 3**

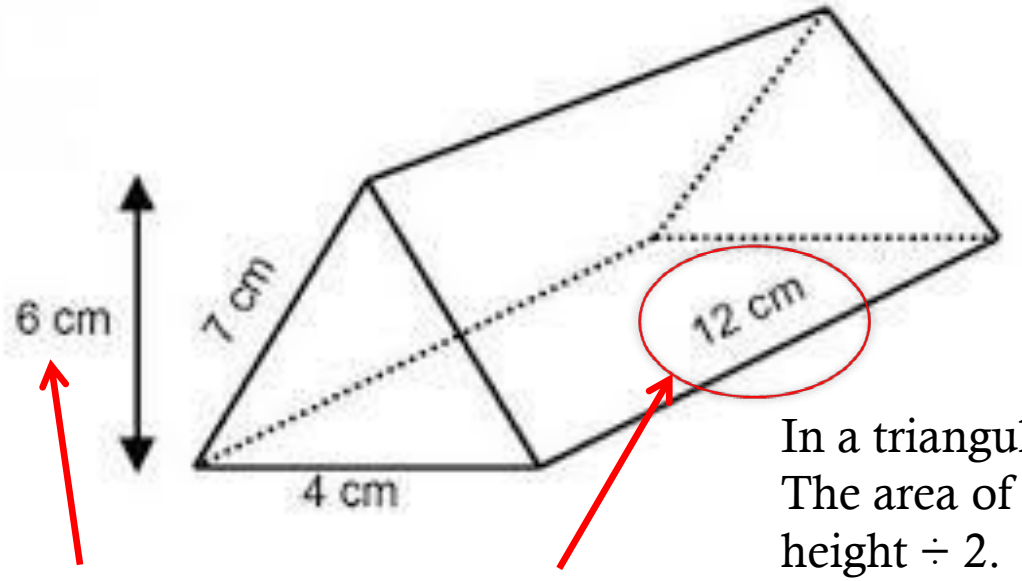
The B stands for area of the base

Did you notice b and B?

- On the formula chart, there's a capital B and a lowercase b.
- They're actually different.
- The capital B means "area of base"
- The lowercase b means "length of base"

Example

What's the volume of this figure?



height of triangle

height of Prism

Volume of Prism

V = Bh

Volume = (Area of Base) x height

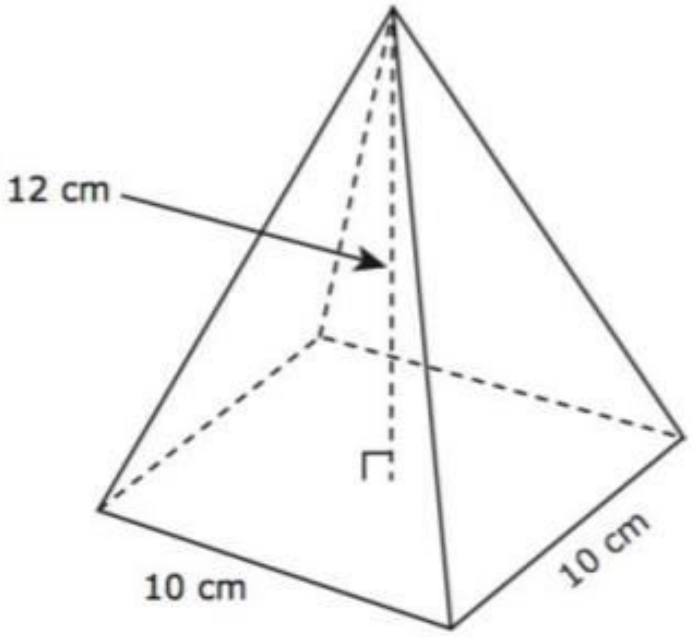
In a triangular prism, the base is the triangle. The area of the base of a triangle is base x height ÷ 2.

$B = 4 \times 6 \div 2 = 12 \text{ cm}^2$

$V = 12(12) = 144 \text{ cm}^3$

I Do

Alina drew a model of a square pyramid. The dimensions of the model are shown in the diagram.



What is the volume of Alina's model in cubic centimeters?

A 400 cm^3

B 1,200 cm^3

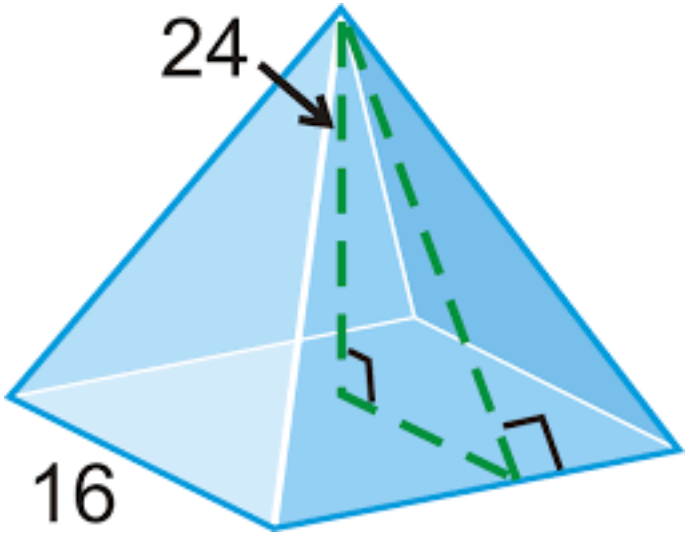
C 600 cm^3

D 160 cm^3

<5 min

We do - Question 1

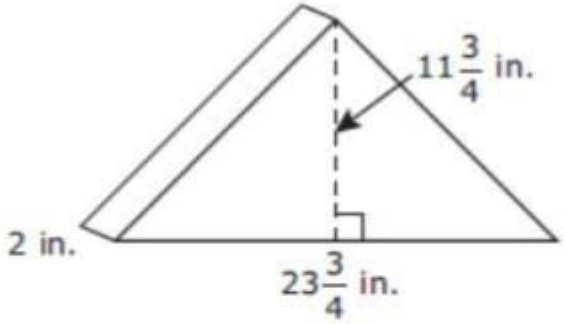
What is the volume of the square pyramid shown below?



<5 min

We Do – Question 2

The triangular prism shown below represents a display case.



Which of the following is the best estimate of the volume of the display case in cubic inches?

A 144 $in.^3$

B 576 $in.^3$

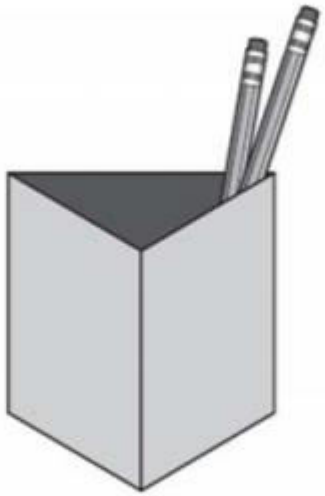
C 288 $in.^3$

D 72 $in.^3$

<5 min

We do - Question 3

A pencil holder shaped like a triangular prism is shown in the picture. The height of the pencil holder is 12 cm, and the volume of the pencil holder is 216 cm^3.



What is the area of the base of the pencil holder in square centimeters?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

<5 min

We do - Question 4

A storage container is shaped like a rectangular prism. The volume of the container is 1,360 cubic feet. The area of the base of the container is 160 square feet. What is the height of the container in feet?

A 17 ft

B 34 ft

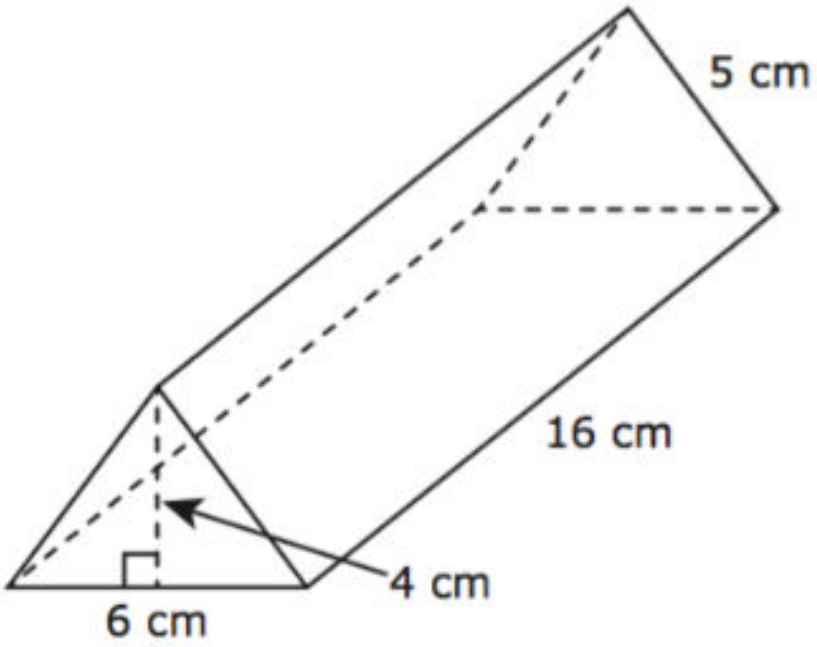
C 8.5 ft

D Not here

<5 min

Q5

The dimensions of a triangular prism are shown in the diagram.



What is the volume of the triangular prism in cubic centimeters?

F 480 cm^3

G 192 cm^3

H 240 cm^3

J 384 cm^3

Lesson

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- 2. Review the chart for the formula
- 3. Solve and check

1 min

Go to the chart given to you!!

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Pyramid	$V = \frac{1}{3}Bh$

You Do

- Go back to Intervene to take your quiz!

Answer Key

- I Do – A
- We Do 1 – 2,048 u^3
- We Do 2 – C
- We Do 3 – 18
- We Do 4 – C
- We Do 5 - G