

Name: Key  
Date: \_\_\_\_\_

Mr. Johnson  
Math 8

### Lesson 4.6 – Volume of a Right Triangular Prism

Investigate:

Complete the investigation activity on page 202 with someone that went to a different Elementary school than you. Use the nets included in the back of this package and follow the steps outlines below.

- Identify the prism each net will form
  - rectangular prism
  - triangular prism
- Cut out the nets and construct the right prisms.
- Visually compare the volumes of the two prisms. How are they related?

triangular prism is  $\frac{1}{2}$  the volume of the rectangular prism

- What is the volume of the rectangular prism? How can you use this volume to find the volume of the triangular prism?

$$\begin{aligned} V &= Ah \\ &= (8)(4)(3) \\ &= 96 \text{ cm}^3 \end{aligned}$$

Divide it by a half

- What is the formula for the volume of a rectangular prism? How can you use this formula to write a formula for the volume of a triangular prism?

$$\begin{aligned} V &= Ah \\ &= (lw)h \\ V &= \frac{1}{2} lwh \end{aligned}$$

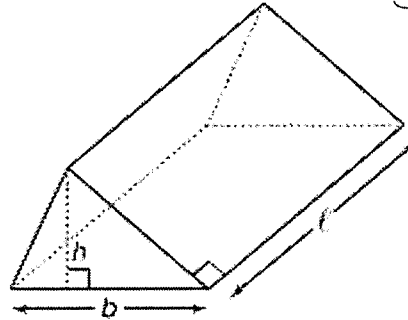
Notes:

We learned earlier this unit that the formula to calculate the Volume of a

rectangular prism is  $V = Ah$ . Since a triangular prism is simply half the size we can use the same formula and simply divide by 2.

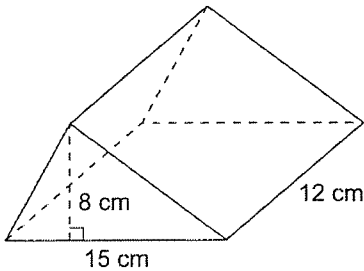
Volume of a right triangular prism:

$$\begin{aligned} V &= A \ell \\ &= \left(\frac{1}{2}bh\right) \ell \end{aligned}$$



Examples:

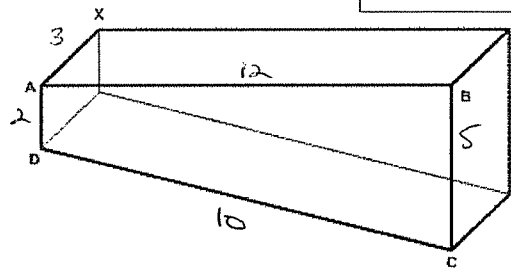
1. Calculate the volume of the prism.



$$\begin{aligned} V &= \frac{1}{2}bh \ell \\ &= \frac{1}{2}(15)(8)(12) \\ &= 720 \text{ cm}^3 \end{aligned}$$

2. Calculate the volume of this composite shape with the given information.

DC = 10 m.  
AX = 3 m.  
AB = 12 m.  
AD = 2 m.  
BC = 5 m.



$$\begin{aligned} V_{\square} &= Ah \\ &= (10 \times 3)(2) \\ &= 60 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} V_{\Delta} &= A \ell \\ &= \left(\frac{1}{2}(10)(3)\right) (3) \\ &= 45 \text{ m}^3 \end{aligned}$$

$$\begin{aligned} V_{\square} + V_{\Delta} &= 60 \text{ m}^3 + 45 \text{ m}^3 \\ &= 105 \text{ m}^3 \end{aligned}$$

Assignment:

Pg. 205-208  
#’s 1-10, 13, 16