

# U1L2 Volume of Prisms

May-27-15 8:40 AM

May 27, 2015

# Measurement Lesson #4: Volume of Prisms

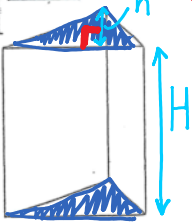
**Def<sup>n</sup>:** The volume of an object is defined as being: the amount of space a three dimensional object takes up

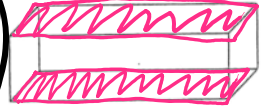
A Prism is any three dimensional object with at least one pair of parallel sides.  
The base of the prism is one of the parallel sides (usually the bottom one)

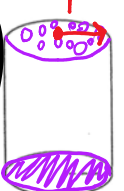
**Class Ex. 1:** Find the prisms in the following diagrams. For each prism, shade in the base, state its name (rectangle, circle, triangle, etc.) and its formula.

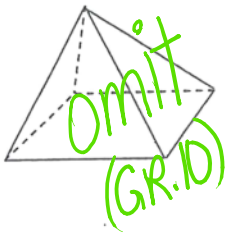
\* by prisms: one pair of parallel sides

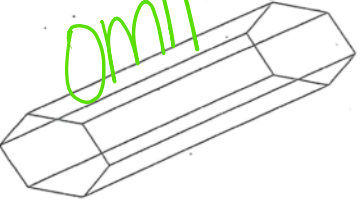
Base: parallel to each other

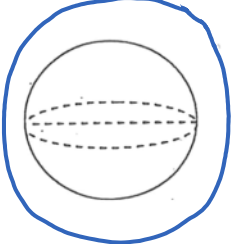
#1)   
Triangle-based prism

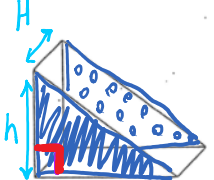
#2)   
Rectangle-based prism

#3)   
Circle-based prism

  
omit (G.R.1D)

  
omit

  
No

  
Triangle-based

Ⓜ Note: base & height are always at 90° in triangle

The Volume of a prism is given by the formula:

**Formula:**  $Volume = Area\ of\ Base \times height$

#3)  $V = (\pi r^2) \times H$   
CIRCLE-BASE

#2)  $V = (L \times W) \times H$   
RECTANGLE-BASE

#1)  $V = (\frac{bh}{2}) \times H$   
TRIANGLE-BASE

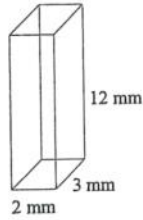
Ⓜ Note: little h is the height of Δ  
big H is the height of prism (found between Δs)

**Assignment:**

$1/9 = \square\%$

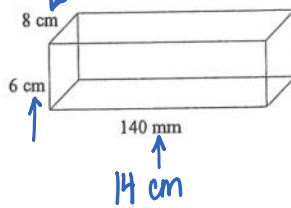
1. State the shape and dimensions of the base of each prism, then find the volume:

a.

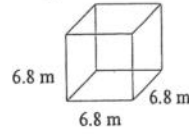


$V = L \times W \times H$   
 $= 2 \times 3 \times 12$   
 $= 72 \text{ mm}^3$

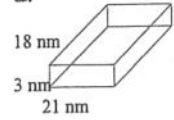
b.



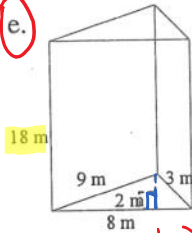
c.



d.

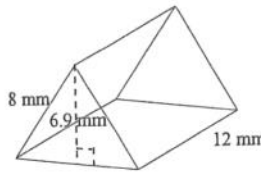


e.

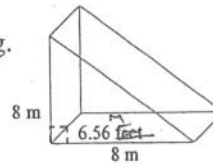


$V = \left(\frac{b \times h}{2}\right) \times H$   
 $= \left(\frac{8 \times 2}{2}\right) \times 18$   
 $= 144 \text{ m}^3$

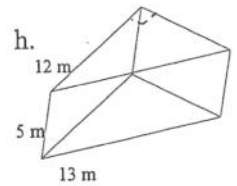
f.



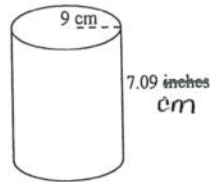
g.



h.



i.

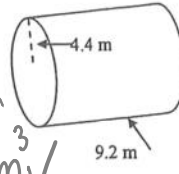


j.

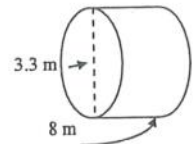


$V = (\pi r^2) \times H$   
 $= (3.14)(6)^2 \times 22$   
 $= 2488 \text{ mm}^3$

k.



l.



**Answer Key:**

- 1a) 72
- 1b) 672
- 1c) 314.4
- 1d) 1134
- 1e) 144
- 1f) 331.2
- 1g) 209.9
- 1h) 150
- 1i) 3053.6
- 1j) 2488.1
- 1k) 559.3
- 1l) 68.39
- 2a) 2 464
- 2b) 150.4i<sup>3</sup>
- 2c) 163362.8
- 2d) 163.4L, 35.9gallons
- 2e) 131946.9