

# Geometry B Live Lesson Class

## U6L9 – Unit 6 Test Review



# Agenda



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1. Review topics and problems from Unit 6 to review for the upcoming test.

2. Use the 2-column note system to take better notes in math class. Bring your math notebook and pen or pencil to each math LiveLesson class.

# 2-Column Notes Template



1. Announcements/To Do's
2. School-Wide Learner Outcomes
3. LL Objectives
4. Vocabulary words
5. Problems
6. Summary (End of class)

1. Write down important details.
2. What are you going to work on this week?
- 3.
4. Definitions (fill in as we go)
5. Steps to solving problems
6. 1 or 2 sentences about the LL class.

# Reminders and To – Do's



## Information

1. Complete 1 math lesson per day.
2. Check your WebMail every day
3. Be prepared to spend 4 - 6 hours per day on schoolwork.
4. Remind your Learning Coach to take daily attendance

## What to do

1. Go to your Planner in Connexus to find the math lesson for the day
2. Go to Connexus to find WebMail
3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Have your Learning Coach log into Connexus daily.

# Reminders and To – Do's



## Information

5. Go to the Message Board first for information about our math class.

6. Contact Mr. Elizondo for math questions.

Remember: You need at least 2 phone calls with Mr. Elizondo per semester.

## What to do

6. Call (559) 549 - 3244 and leave a voicemail if call is not answered.

Make an appointment at:  
<https://elizondo.youcanbook.me>

Send a WebMail

# U6L9 – Objectives



- Review lesson material associated with the surface area and volume to prepare for the unit test

# U6L9 – Vocabulary, page 1



- 
- altitude
  - base
  - center of a sphere
  - circumference of a sphere
  - composite space figure
  - cone
  - cross section
  - cylinder
  - diameter of a sphere
  - edge
  - face
  - great circle
  - height
  - hemisphere
  - lateral area
  - lateral face

# U6L9 – Vocabulary, page 2



- 
- oblique cylinder
  - oblique prism
  - polyhedron
  - prism
  - pyramid
  - radius of a sphere
  - regular pyramid
  - right cone
  - right cylinder
  - right prism
  - similar solids
  - slant height
  - sphere
  - surface area
  - vertex
  - volume



# U6L9 – Things to Know for Unit 6 Test



- 
- Euler's formula
  - Cross sections
  - Lateral area and surface area
  - Volume
  - Composite figures
  - Similar figures (similarity ratio/scale factor)
  - Ratio of areas and volumes

# U6L9 – Euler's Formula



Use Euler's Formula to find the missing number.



faces: 20

edges: ■

vertices: 12

$$F + V = E + 2$$

$$20 + 12 = E + 2$$

$$32 = E + 2$$

$$\mathbf{E = 30}$$

*This polyhedron has 30 edges.*

# U6L9 – Cross Sections



Describe the cross section.



*The cross section would be 2 concentric circles.*

# U6L9 - Formulas

$p$  is perimeter of base

$B$  is area of base

$h$  is height of prism, cylinder, pyramid, or cone

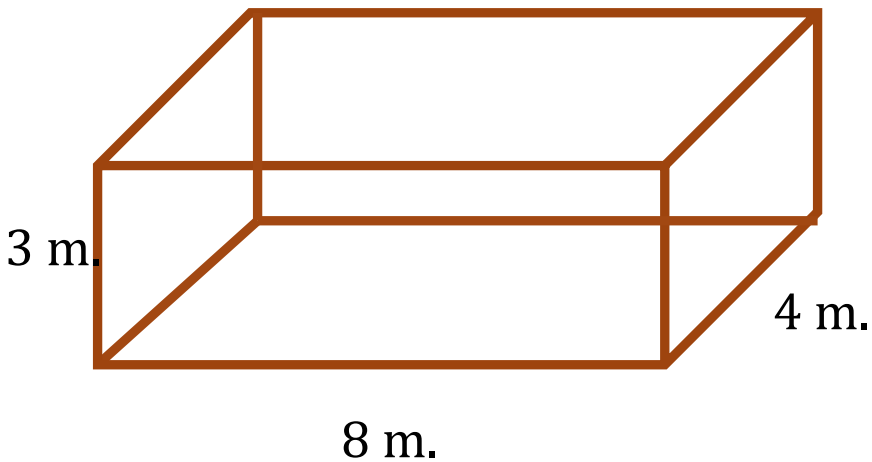


Shape	Lateral Area	Surface Area	Volume
Prism	$LA = ph$	$SA = LA + 2B$	$V = Bh$
Cylinder	$LA = 2\pi rh$	$SA = 2\pi rh + 2\pi r^2$	$V = \pi r^2 h$
Pyramid	$LA = \frac{1}{2}pl$	$SA = LA + B$	$V = \frac{1}{3}Bh$
Cone	$LA = \pi rl$	$SA = LA + B$	$V = \frac{1}{3}\pi r^2 h$
Sphere	n/a	$SA = 4\pi r^2$	$V = \frac{4}{3}\pi r^3$

# U6L9 – Surface Area of a Prism



What is the lateral area and surface area of the following rectangular prism?



$$L.A. = \textit{perimeter} \cdot \textit{height}$$

$$L.A. = (8 + 4 + 8 + 4) \cdot 3$$

$$L.A. = (24) \cdot 3$$

$$L.A. = 72 \text{ m}^2$$

$$S.A. = L.A. + 2B \text{ \{area of the base times 2\}}$$

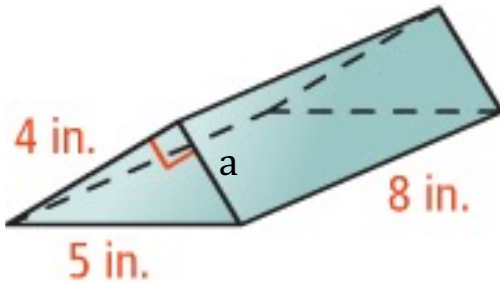
$$S.A. = 72 + 2(32)$$

$$S.A. = 72 + 64$$

$$S.A. = 136 \text{ m}^2$$

# U6L9 - Surface Area of Prism

What is the lateral area and surface area of the following prism?



1) Find the value of a.

$$a^2 + b^2 = c^2$$

$$a^2 + 4^2 = 5^2$$

$$a^2 = 9$$

$$a = 3$$

2) Find the perimeter of the base

$$P = 3 + 4 + 5 = 12$$

3) Find the lateral area

$$L.A. = \textit{perimeter} \cdot \textit{height}$$

$$L.A. = (12)(8) = 96 \textit{ in}^2$$

4) Find the area of the base

$$\textit{Area} = \frac{3 \cdot 4}{2} = 6 \textit{ in}^2$$

5) Find the surface area.

$$S.A. = L.A. + 2B \{\textit{area of the base times 2}\}$$

$$S.A. = 96 + 2(6)$$

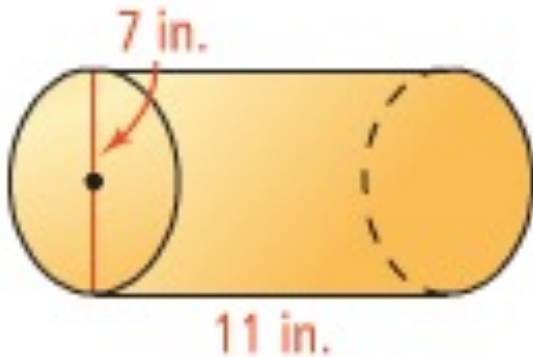
$$S.A. = 96 + 12$$

$$S.A. = 108 \textit{ in}^2$$

# U6L9 – Surface Area of a Cylinder



Find the lateral area and surface area for the following cylinder (in terms of  $\pi$ ):



$$L.A. = 2\pi r h$$

$$L.A. = 2\pi(3.5)(11)$$

$$L.A. = 77\pi \text{ in}^2$$

$$S.A. = L.A. + 2\pi r^2$$

$$S.A. = 77\pi + 2\pi(3.5)^2$$

$$S.A. = 77\pi + 2\pi(12.25)$$

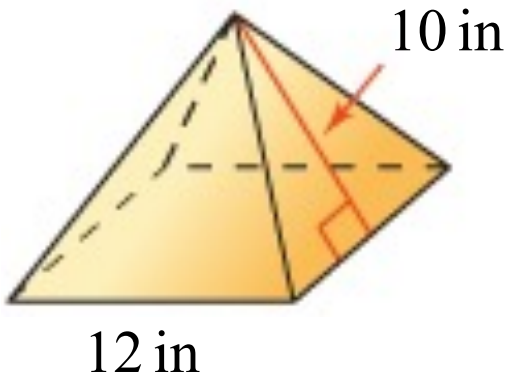
$$S.A. = 77\pi + 24.5\pi$$

$$S.A. = 101.5\pi \text{ in}^2$$

# U6L9 – Surface Area of a Pyramid



What is the surface area of a square pyramid with base edge of 12 in and a slant height of 10 in?



$P$  = perimeter  
 $l$  = slant height  
 $B$  = area of base

$$L.A. = \frac{1}{2}Pl$$

$$L.A. = \frac{1}{2}(48)(10)$$

$$L.A. = 240 \text{ in}^2$$

$$S.A. = L.A. + B$$

$$S.A. = 240 + (12 \cdot 12)$$

$$S.A. = 240 + 144$$

$$\mathbf{S.A. = 384 \text{ in}^2}$$



# U6L9 – Surface Area of a Cone



The diameter of the base of a cone is 16 m. Its slant height is 12 m. What is the lateral area of the cone in terms of  $\pi$ ?



$$L.A. = \frac{1}{2} \cdot 2\pi r l \text{ or } L.A. = \pi r l$$

$$r = 8m, l = 12m$$

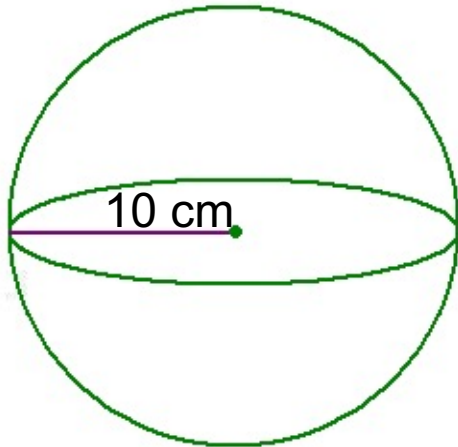
$$L.A. = \pi(8m)(12m)$$

$$L.A. = 96\pi m^2$$

# U6L9 – Spheres



Find the surface area and volume of the sphere in terms of  $\pi$ .



$$S.A. = 4\pi r^2$$

$$S.A. = 4\pi(10)^2$$

$$S.A. = 4\pi(100)$$

$$\mathbf{S.A. = 400\pi \text{ cm}^2}$$

$$V = \frac{4}{3}\pi r^3$$

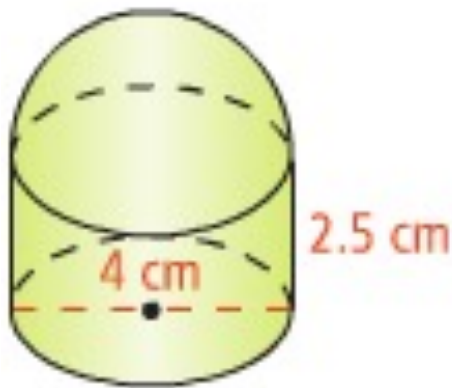
$$V = \frac{4}{3}\pi 10^3$$

$$\mathbf{V = \frac{4000}{3}\pi \text{ cm}^3}$$

# U6L9 – Composite Figures



Find the volume of the following figure in terms of  $\pi$



1.) Find volume of cylinder

$$V = \pi r^2 h$$

$$V = \pi(2)^2(2.5)$$

$$V = \pi(4)(2.5)$$

$$V = 10\pi$$

2.) Volume of hemisphere  
(find the volume of the total sphere and multiply by  $\frac{1}{2}$ )

$$V = \frac{1}{2} \left( \frac{4}{3} \pi r^3 \right)$$

$$V = \frac{1}{2} \left( \frac{4}{3} \pi (2)^3 \right)$$

$$V = \frac{1}{2} \left( \frac{32}{3} \pi \right)$$

$$V = \frac{16}{3} \pi \text{ or } 5\frac{1}{3} \pi$$

3.) Find total volume

$$V = 10\pi + 5\frac{1}{3} \pi = 15\frac{1}{3} \pi \text{ cm}^3$$

# Questions?

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- Check the Message Board first
- Send a WebMail
- You can also make an appointment at <https://elizondo.youcanbook.me>
- You can also call me at (559) 549-3244. If I'm not available to answer your call, please leave a voicemail with your full name and phone number.