

# Geometry B Live Lesson Class

## U5L3 – Areas of Regular Polygons (Ch 10-3 in textbook)



# Agenda



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1. Review topics and problems from Unit 5, Lesson 3 – Areas of Regular Polygons.

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

## U5L3 – California Common Core State Standards

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- HSG-MG.A.1: Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
- HSG-CO.D.13: Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

# U5L3 – Objectives



- Find the area of a regular polygon

# U5L3 – Vocabulary Words



- apothem
- radius of a regular polygon



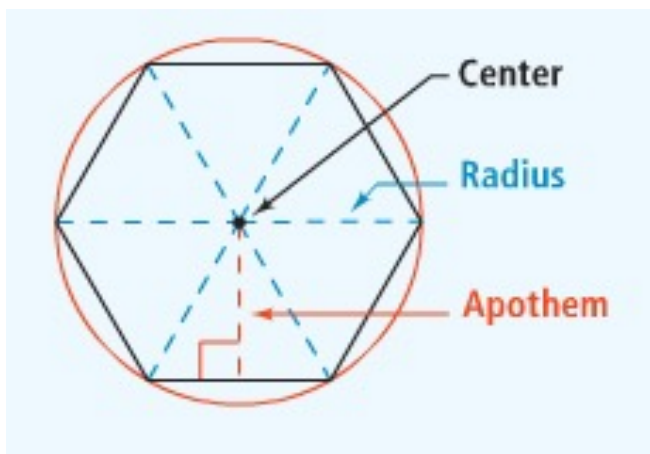
# U5L3 – Areas of Regular Polygons



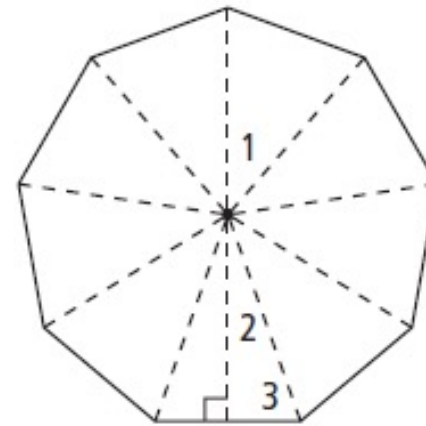
## Parts of a Polygon

Radius:

Apothem:



Each regular polygon has radii and apothem as shown. Find the measure of each numbered angle.



$$\frac{360}{9} = 40^\circ$$

$$\angle 1 = 40^\circ$$

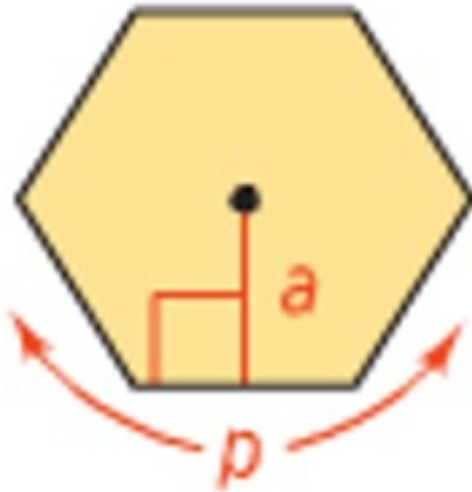
$$\angle 2 = 20^\circ$$

$$\angle 3 = 70^\circ$$

# U5L3 – Areas of Regular Polygons



Find the area of a regular hexagon with apothem 24.3 cm and side length 35.3 cm.



$$A = \frac{1}{2} aP$$

$$a = 24.3$$

$$P = 35.3 \cdot 6 = 211.8$$

$$A = \frac{1}{2} aP$$

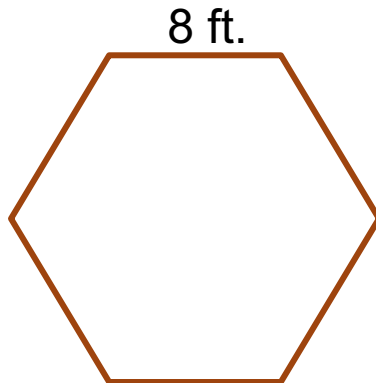
$$A = \frac{1}{2} (24.3)(211.8)$$

$$A = 2573.37 \text{ cm}^2$$

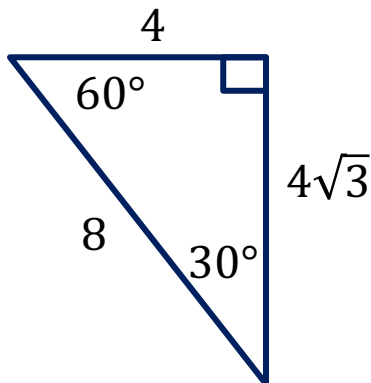
# U5L3 – Areas of Regular Polygons



Find the area of the regular hexagon.



$$A = \frac{1}{2}aP$$



$$a = 4\sqrt{3}$$

$$P = 48$$

$$A = \frac{1}{2}(4\sqrt{3})(48)$$

$$A = 96\sqrt{3} \text{ ft}^2$$

or

$$A = 166.28 \text{ ft}^2$$

# U5L3 – Areas of Regular Polygons



Each side of a regular octagon is 12.6 inches long. The area of the stop sign is  $770 \text{ in}^2$ .

What is the length of the apothem to the nearest tenth?

$$A = \frac{1}{2}ap$$

$$\text{Area} = 770$$

$$\text{Perimeter} = 12.6 \cdot 8 = 100.8$$

$$A = \frac{1}{2}ap$$

$$770 = \frac{1}{2}a(100.8)$$

$$770 = 50.4a$$

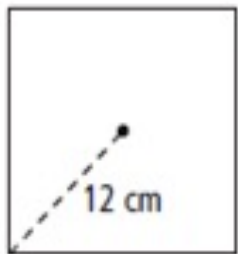
$$\frac{770}{50.4} = a$$

$$a = 15.3 \text{ in}$$

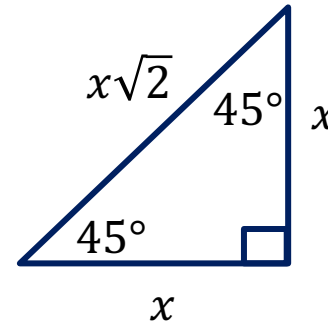
# U5L3 – Areas of Regular Polygons



4. What is the area of the square below?



- 16.97 cm<sup>2</sup>
- 72 cm<sup>2</sup>
- 144 cm<sup>2</sup>
- 288 cm<sup>2</sup>



$$x\sqrt{2} = 12$$

$$x = \frac{12}{\sqrt{2}}$$

$$x = \frac{12 \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}}$$

$$x = \frac{12\sqrt{2}}{2}$$

$$x = 6\sqrt{2}$$

$$\text{One side} = 6\sqrt{2} + 6\sqrt{2} = 12\sqrt{2}$$

$$\text{Area} = 12\sqrt{2} \cdot 12\sqrt{2}$$

$$\text{Area} = 144 \cdot 2$$

$$\text{Area} = 288 \text{ cm}^2$$

# 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.