

Geometry B Live Lesson Class

U5L9 – Area Unit Review



Agenda



1. Review topics and problems from Unit 5 to help you complete the Unit 5 Sample Work and to prepare for the Unit 5 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.

U5L9 – Objectives



- To review topics and problems from Unit 5 to help you complete the Unit 5 Sample Work and to prepare for the Unit 5 Test.

U5L9 – Vocabulary



- adjacent arcs
- altitude of a parallelogram
- apothem
- base of a parallelogram
- base of a triangle
- center
- central angle
- circle
- circumference
- concentric circles
- congruent arcs
- congruent circles
- diameter
- height of a parallelogram
- height of a trapezoid
- height of a triangle
- major arc
- minor arc
- pi
- radius
- radius of a regular polygon
- sector of a circle
- segment of a circle
- semicircle

U5L9 – Things to know for the Test

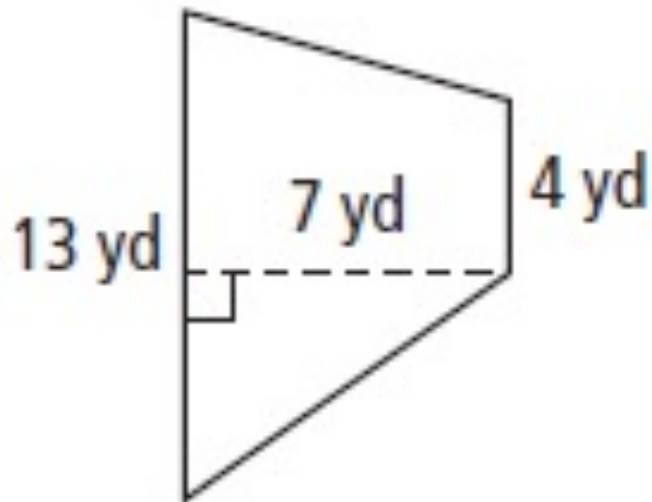


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- Areas of parallelograms, rectangles, triangles, trapezoids, kites, rhombuses
 - Areas of regular polygons (using trig to find apothem)
 - Area of triangle using SAS Theorem
 - Ratio of perimeters and ratios of areas
 - Measure of arcs
 - Circumference/area of circle
 - Area of sector
 - Area of “shaded” segment of circle (area of sector – area of a triangle)
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U5L9 – Area of Quadrilaterals



Find the area.



$$\textit{Trapezoid: } A = \frac{1}{2}h(b_1 + b_2)$$

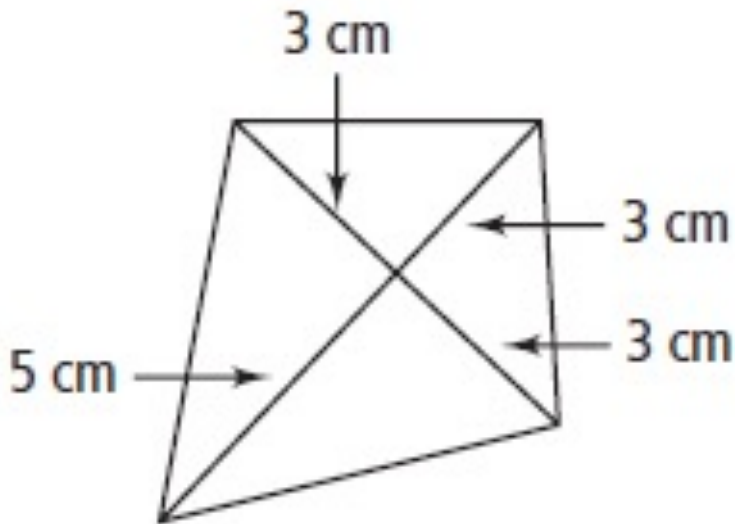
$$A = \frac{1}{2} \cdot 7(4 + 13)$$

$$A = 59.5 \text{ yd}^2$$

U5L9 – Area of Quadrilaterals



Find the area.



$$\text{Kite: } A = \frac{1}{2}d_1d_2$$

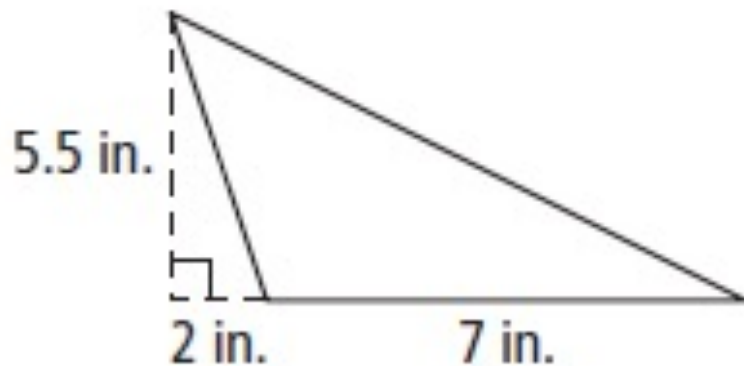
$$A = \frac{1}{2} \cdot 6 \cdot 8$$

$$A = 24 \text{ cm}^2$$

U5L9 – Area of Triangles



Find the area.



$$\text{Triangle: } A = \frac{1}{2}bh$$

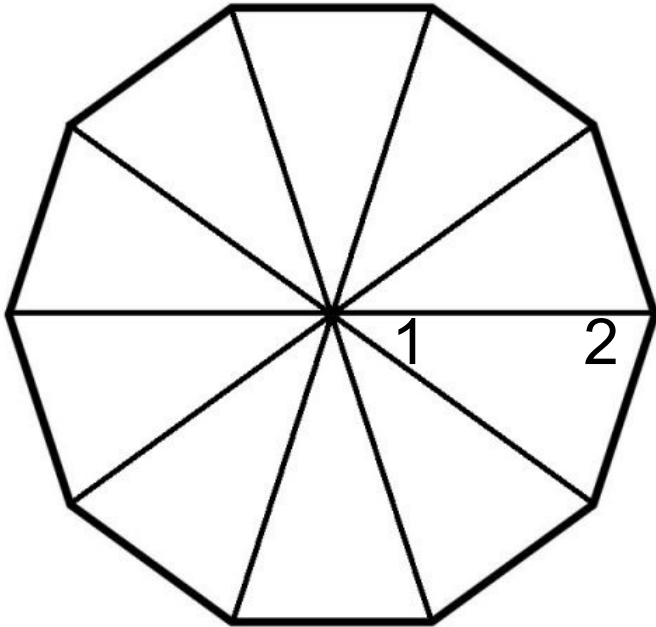
$$A = \frac{1}{2} \cdot 7 \cdot 5.5$$

$$A = 19.25 \text{ in}^2$$

U5L9 – Regular Polygons



Given the regular polygon, what is the measure of each numbered angle?



$$m\angle 1 = \frac{360^\circ}{10 \text{ sides}}$$

$$m\angle 1 = 36^\circ$$

$$m\angle 2 = \frac{180^\circ - 36^\circ}{2}$$

$$m\angle 2 = \frac{144^\circ}{2}$$

$$m\angle 2 = 72^\circ$$

U5L9 – Area of Regular Polygons



What is the area of a regular hexagon with apothem 6.9 inches and a side length of 8 inches?

$$\text{Area of Regular Polygon: } A = \frac{1}{2} aP$$

$$a = 6.9 \text{ in.}$$

$$P = (8 \text{ in.})(6 \text{ sides}) = 48 \text{ in.}$$

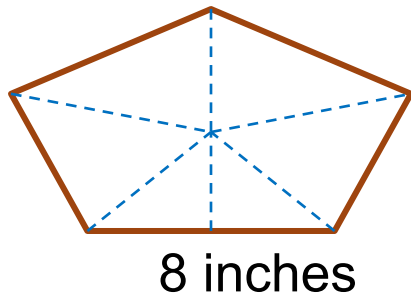
$$A = \frac{1}{2} (6.9)(48)$$

$$\mathbf{A = 165.6 \text{ in}^2}$$

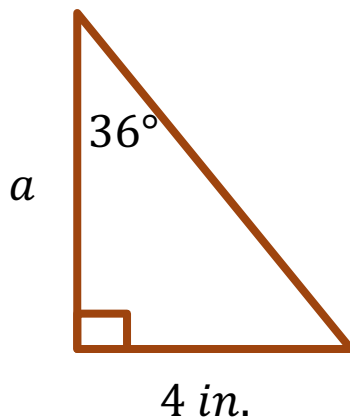
U5L9 – Area of Regular Polygons



What is the area of a regular pentagon with a side of 8 inches?



$$\frac{360}{5} = 72^\circ$$



Find the apothem.

$$\tan 36^\circ = \frac{4}{a}$$

$$a = \frac{4}{\tan 36^\circ}$$

$$a = 5.51 \text{ in.}$$

Find the perimeter.

$$P = (5 \text{ sides})(8 \text{ inches}) = 40 \text{ inches}$$

Find the area.

$$A = \frac{1}{2} (5.51)(40) = 110.2 \text{ in}^2$$

U5L9 – Area of Similar Figures



The area of a regular decagon is 28 cm^2 . What is the area of a regular decagon with sides six times as long?

$$\text{Ratio of the sides } \left(\frac{1\text{st decagon}}{2\text{nd decagon}} \right) : \frac{1}{6}$$

$$\text{Ratio of the perimeters: } \frac{a}{b} = \frac{1}{6}$$

$$\text{Ratio of the areas: } \frac{a^2}{b^2} = \frac{1^2}{6^2} = \frac{1}{36}$$

If the area of the 1st decagon is 28 cm^2 , then the area of the 2nd decagon is:

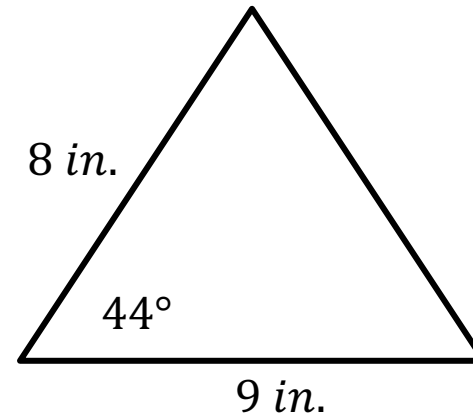
$$\frac{a^2}{b^2} = \frac{1^2}{6^2} = \frac{1}{36} \quad \frac{28}{28} \cdot \frac{1}{36} = \frac{28}{1,008}$$

$$\text{Area} = 28(36) = \mathbf{1008 \text{ cm}^2}$$

U5L9 – Area of Triangles



A slice of pizza has a triangular shape. Two adjacent sides of the pizza are 8 inches long and 9 inches long. The angle between the sides is 44° . Find the area of the pizza to the nearest square inch.



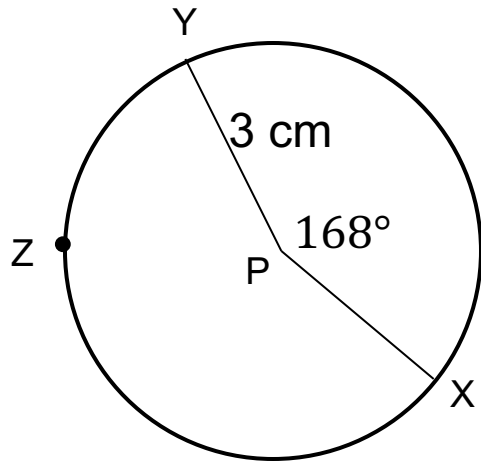
$$\text{Area} = \frac{1}{2}bc(\sin A)$$

$$\text{Area} = \frac{1}{2}(8\text{in.})(9\text{in.})(\sin 44^\circ)$$

$$\text{Area} = 36\text{in}^2 \cdot 0.6946$$

$$\text{Area} = 25.0056\text{ in}^2$$

U5L9 – Arcs



- What is the name of the minor arc? \widehat{XY}
- What is its measure? 168°
- What is the length of the minor arc?

$$A = \frac{\widehat{XY}}{360} \cdot 2\pi r$$

$$A = \frac{168}{360} \cdot 2\pi(3cm)$$

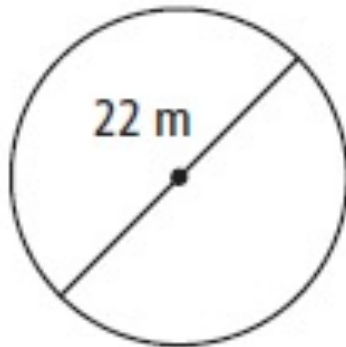
$$A = 0.4667 \cdot 18.84cm$$

$$A = 8.79 cm$$

U5L9 – Circumference and Area



What is the circumference of the circle? What is the area of the circle? Leave your answer in terms of π .



$$C = 2\pi r \text{ or } C = \pi d$$

$$C = 2\pi(11 \text{ m})$$

$$\mathbf{C = 22\pi}$$

$$A = \pi r^2$$

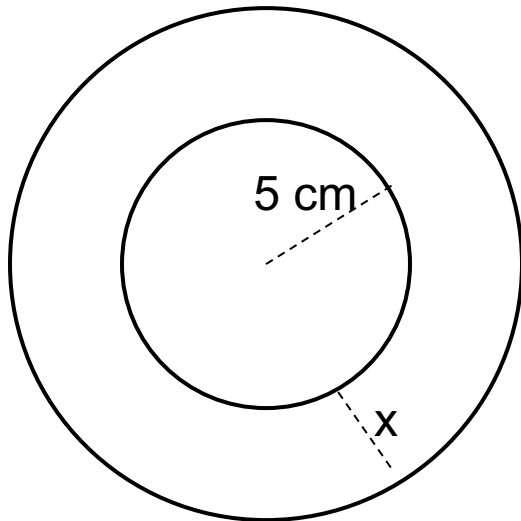
$$A = \pi(11\text{m})^2$$

$$\mathbf{A = 121\pi \text{ m}^2}$$

U5L9 – Concentric Circles



The two circles have the same center. The circumference of the larger circle is 50 cm. Find the value of x .



$$C = 2\pi r$$

$$\text{radius of large circle: } r = x + 5$$

$$50 = 2\pi(x + 5)$$

$$50 = 2(3.14)(x + 5)$$

$$50 = 6.28(x + 5)$$

$$50 = 6.28x + 31.4$$

$$50 - 31.4 = 6.28x + 31.4 - 31.4$$

$$18.6 = 6.28x$$

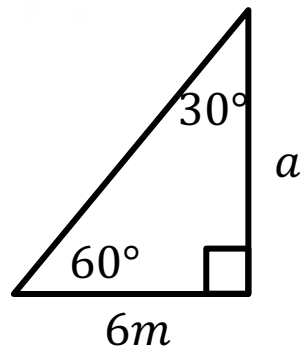
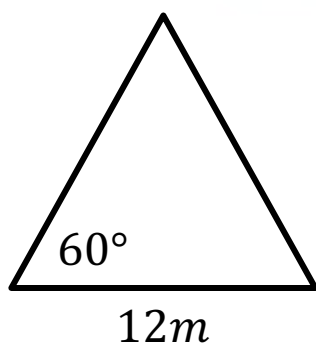
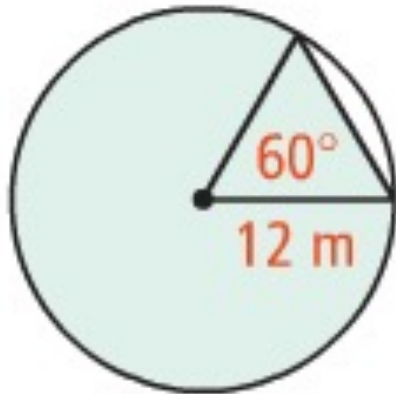
$$\frac{18.6}{6.28} = \frac{6.28}{6.28}x$$

$$\mathbf{2.96 \text{ cm} = x}$$

U5L9 – Area of Shaded Region



Find the area of the shaded region.



$$a = 6\sqrt{3}$$

Area of *circle* – Area of the *segment*

$$\text{Area of segment} = \frac{\widehat{AB}}{360} \cdot \pi r^2 - \frac{1}{2}bh$$

$$A = \frac{60}{360} \cdot \pi(12 \text{ m})^2 - \frac{1}{2}(12 \text{ m})(6\sqrt{3} \text{ m})$$

$$A = \frac{1}{6}(144\pi) \text{ m}^2 - 6 \text{ m}(6\sqrt{3} \text{ m})$$

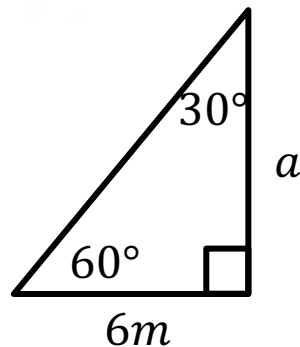
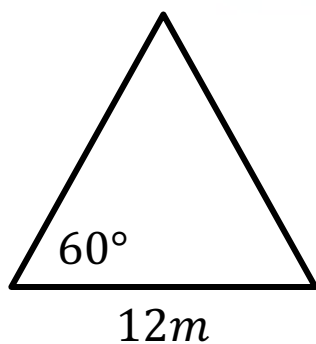
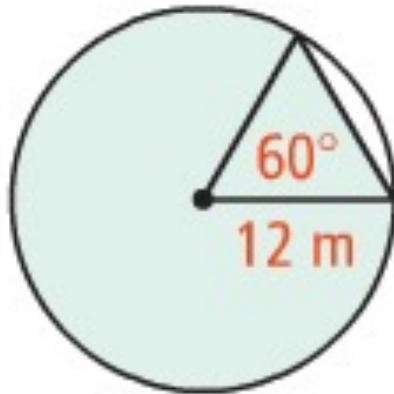
$$A = 75.36 \text{ m}^2 - 62.35 \text{ m}^2$$

$$A(\text{segment}) = 13.01 \text{ m}^2$$

U5L9 – Area of Shaded Region



Find the area of the shaded region.



$$a = 6\sqrt{3}$$

Area of *circle* – Area of the *segment*

$$A(\text{segment}) = 13.01 \text{ m}^2$$

$$\text{Area of } \textit{circle} = \pi r^2$$

$$\text{Area of } \textit{circle} = \pi(12\text{m})^2$$

$$A = 144\pi \text{ m}^2$$

$$A = 452.16 \text{ m}^2$$

$$A = 452.16 \text{ m}^2 - 13.01 \text{ m}^2$$

$$\mathbf{A = 439.15 \text{ m}^2}$$

Questions?



- 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.