Geometry B Live Lesson Class

U5L4 – Perimeters and Areas of Similar Figures

(Ch 10-4 in textbook)

Agenda

1. Review topics and problems from Unit 5, Lesson 4 – Perimeters and Areas of Similar Figures.

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	1. Write down important details.
2. School-Wide Learner Outcomes	2. What are you going to work on this week?
3. LL Objectives	
4. Vocabulary words	4. Definitions (fill in as we go)
5. Problems	5. Steps to solving problems
6. Summary (End of class)	6. 1 or 2 sentences about the LL class.

Reminders and To – Do's

Information	What to do
1. Complete 1 math lesson per day.	1. Go to your Planner in Connexus to find the math lesson for the day
2. Check your WebMail every day	2. Go to Connexus to find WebMail
3. Be prepared to spend 4 - 6 hours per day on schoolwork.	3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Remind your Learning Coach to take daily attendance	4. Have your Learning Coach log into Connexus daily.

Reminders and To – Do's

Information	What to do
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.	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

U5L4 – California Common Core State Standards

- HSN-Q.A.1: Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

U5L4 – Objectives

- Find the perimeters and areas of similar polygons

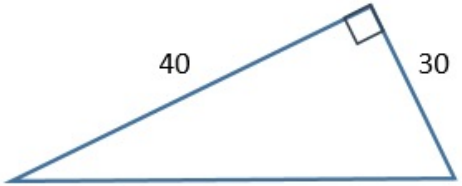
U5L4 – Perimeters and Areas of Similar Figures

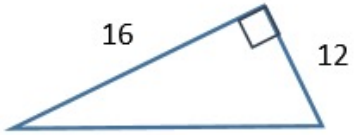
Perimeter and Area of Similar Figures

If the scale factor of two similar figures is $\frac{a}{b}$, then:

- the ratio of their perimeters is $\frac{a}{b}$
- the ratio of their areas is $\frac{a^2}{b^2}$

Given these two similar right triangles, find the ratios of the perimeters and ratios of areas (large triangle to small triangle).





x

$30^2 + 40^2 = x^2$

$900 + 1600 = x^2$

$2500 = x^2$

$x = 50$

$Perimeter = 120$

$Area = 600$

y

$12^2 + 16^2 = y^2$

$144 + 256 = y^2$

$400 = y^2$

$y = 20$

$Perimeter = 48$

$Area = 96$

U5L4 – Perimeters and Areas of Similar Figures

$\frac{40}{16} = \frac{5}{2}$ $\frac{30}{12} = \frac{5}{2}$ $\frac{50}{20} = \frac{5}{2}$

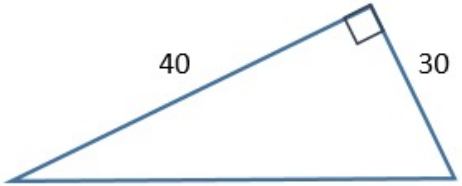
$Ratio\ of\ perimeters: \frac{120 \div 24}{48 \div 24} = \frac{5}{2}$

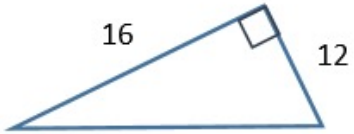
$Ratio\ of\ areas: \frac{(600)^2}{(96)^2}$

$\frac{a^2}{b^2} = \frac{(600)^2}{(96)^2}$ $\frac{\sqrt{a^2}}{\sqrt{b^2}} = \frac{\sqrt{(600)^2}}{\sqrt{(96)^2}}$

$\frac{a}{b} = \frac{600}{96} = \frac{25}{4}$

Given these two similar right triangles, find the ratios of the perimeters and ratios of areas (large triangle to small triangle).





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U5L4 – Perimeters and Areas of Similar Figures

A postcard costs $0.95. Leslie wants to buy a poster that is a similar shape with a scale factor for the poster to the postcard of 5:1. How much should she expect to pay for the poster?

$$\frac{5}{1} = \frac{x}{0.95}$$

$$x = 5(0.95) = \$\mathbf{4.75}$$

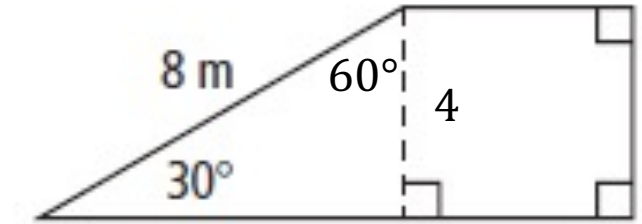
U5L4 – To Know for the Quiz

- Area
  - Parallelogram
  - Triangle
  - Trapezoid
  - Kite
  - Rhombus
- Area of regular polygons

- Ratio of perimeter and area for similar figures

U5L4 – Review

Find the area of the trapezoid.



$2x = 8$

$x = 4$

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

$$A(triangle) = 8\sqrt{3}m^2 = 13.856\ m^2$$

$$A(rectangle) = 4 \cdot 8.071 = 32.287\ m^2$$

$$Total\ Area: \mathbf{13.856 + 32.287} = \mathbf{46.143}\boldsymbol{m^2}$$

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.