

# Geometry B Live Lesson Class

U2L3 – Proving Triangles Similar  
(Chapter 7-3 in textbook)



# Agenda



---

1. Review topics and problems from Unit 2, Lesson 3.

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

## U2L3 - California Common Core State Standards

---



- HSG-SRT.A.3: Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
- HSG-SRT.B.4: Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.
- HSG-SRT.B.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- HSG-SRT.A.2: Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

# U2L3 – Objectives



- Use the AA Similarity Postulate and the SAS Similarity and SSS Similarity Theorems
- Use similarity to find indirect measurements

# U2L3 – Key Words



- 
- indirect measurement



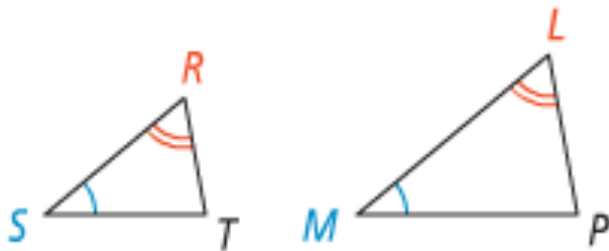
# U2L3 – Proving Triangles Similar



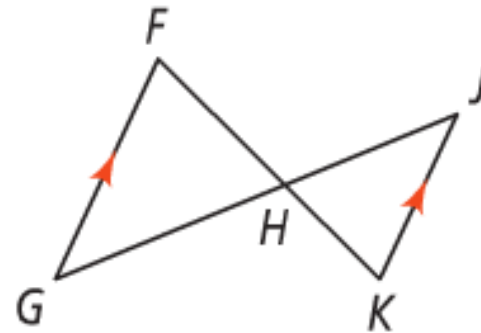
## Proving Triangles Similar

### AA ~ Postulate

Show that two angles of one triangle are congruent to two angles of another triangle



Are the triangles similar? If so, write a similarity statement and name the postulate/theorem you used.



$\angle GFH \cong \angle JKH$  Alternate Interior Angles

$\angle FGH \cong \angle KJH$  Alternate Interior Angles

$\angle FHG \cong \angle KHJ$  Vertical Angles

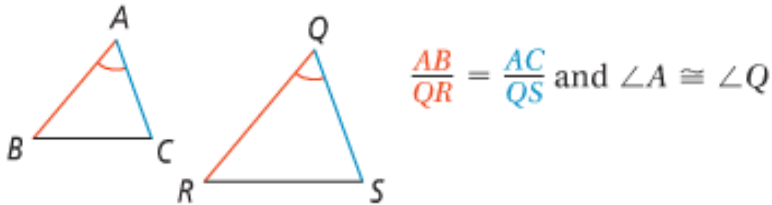
AA~

# U2L3 – Proving Triangles Similar



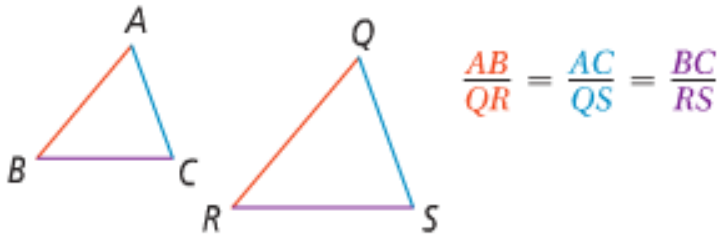
## SAS ~ Theorem

“Show that an angle of one triangle is congruent to an angle of a second triangle, and the sides that include the two angles are proportional.

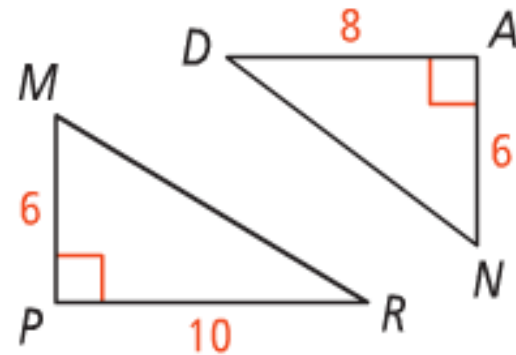


## SSS ~ Theorem

Show that corresponding sides of two triangles are proportional



Are the triangles similar? If so, write a similarity statement and name the postulate/theorem you used.



$\angle MPR$  and  $\angle NAD$  Right angles

$\angle GFH \cong \angle JKH$  All right angles are congruent

$$\frac{MP}{NA} = \frac{6}{6} = 1$$

$$\frac{PR}{AD} = \frac{10}{8} = \frac{5}{4}$$

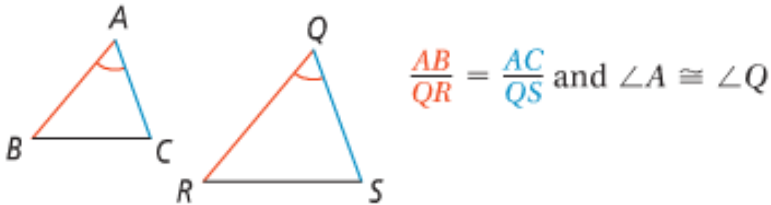
Not similar, sides are not in correct proportion

# U2L3 – Proving Triangles Similar



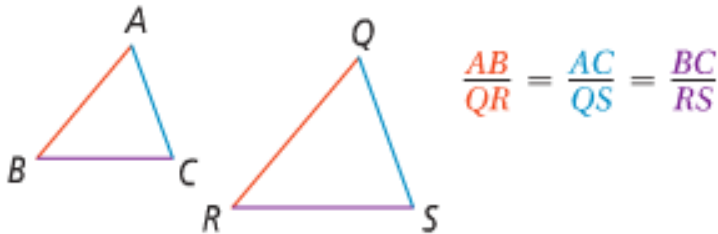
## SAS ~ Theorem

“Show that an angle of one triangle is congruent to an angle of a second triangle, and the sides that include the two angles are proportional.

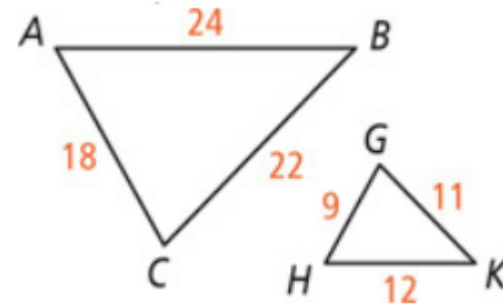


## SSS ~ Theorem

Show that corresponding sides of two triangles are proportional



Are the triangles similar? If so, write a similarity statement and name the postulate/theorem you used.



$$\frac{AC}{HG} = \frac{CB}{GK} = \frac{BA}{KH} \quad \frac{18}{9} = \frac{22}{11} = \frac{24}{12} = \frac{1}{2}$$

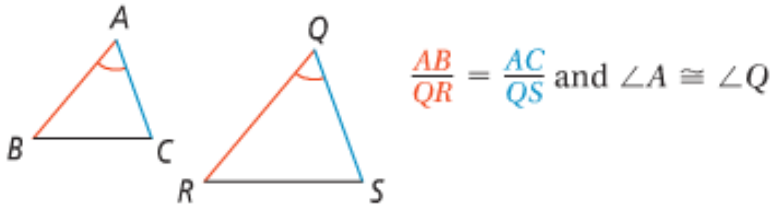
$\triangle ABC \sim \triangle HKG$  by *SSS*

# U2L3 – Proving Triangles Similar



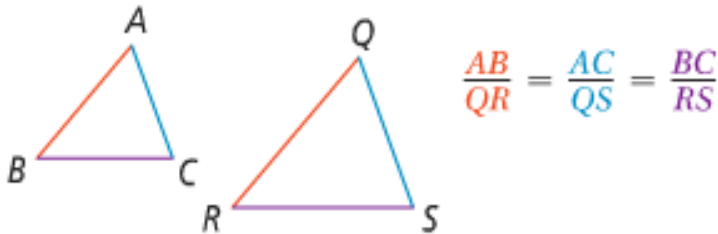
## SAS ~ Theorem

“Show that an angle of one triangle is congruent to an angle of a second triangle, and the sides that include the two angles are proportional.

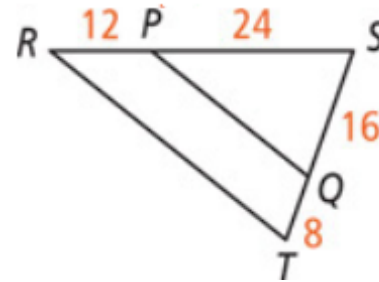


## SSS ~ Theorem

Show that corresponding sides of two triangles are proportional



Are the triangles similar? If so, write a similarity statement and name the postulate/theorem you used.



$$\frac{PS}{RS} = \frac{24}{24 + 12} = \frac{24}{36} = \frac{2}{3} \quad \angle S \cong \angle S$$

$$\frac{SQ}{ST} = \frac{16}{16 + 8} = \frac{16}{24} = \frac{2}{3}$$

$\Delta RST \sim \Delta PSQ$  by SAS

## U2L3 – Indirect Measurement



You can use indirect measurement to find lengths that are difficult to measure directly.

$$\frac{120}{90} = \frac{x}{135}$$

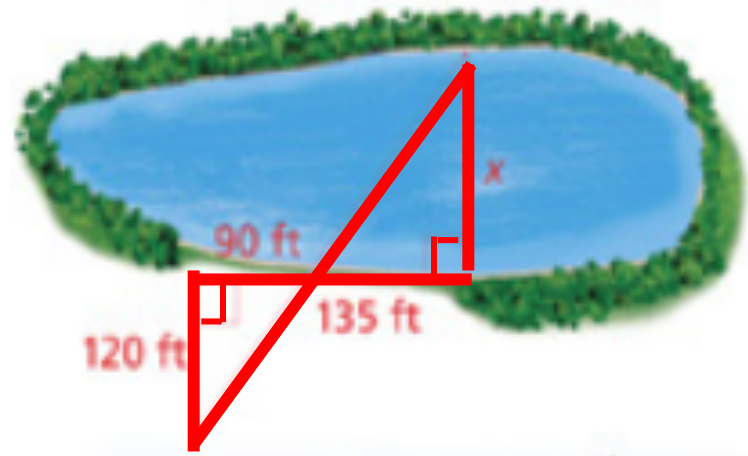
$$\frac{4}{3} = \frac{x}{135}$$

$$3x = 540$$

$$\frac{3x}{3} = \frac{540}{3}$$

$$x = 180 \text{ ft}$$

Explain why the triangles are similar. Then find the distance represented by  $x$ .



The triangles are similar by AA (right angles and vertical angles)

## U2L3 – Quiz Prep



- Find the ratio (different units)
- Solve problems with ratios
- Write and solve proportions for similar figures
- Use properties of proportions
- Determine if two triangles are similar
- Write a similarity statement

# 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.