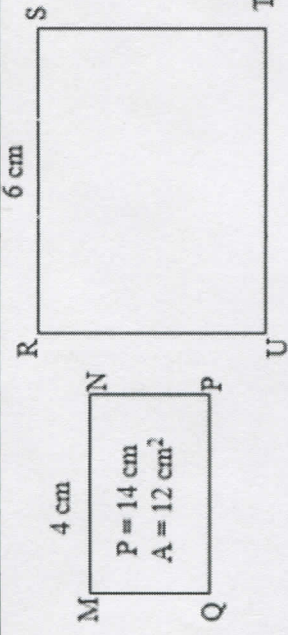


Lesson Title 8.2 & 8.3 Proving Triangles Similar by AA~, SSS~, & SAS~ DAY ONE NOTES HGEO Date \_\_\_\_\_

**TASK 1:** RECALL Similarity Ratio & Perimeter & Area relationships

Identify the  $\frac{SR}{T}$  of rectangle RSTU.



$$\left(\frac{2}{3}\right)^2 = \frac{12}{x}$$

$$\frac{4}{9} = \frac{12}{x}$$

$$4x = 108$$

$$x = 27$$

$$\frac{4}{6} = \frac{2}{3}$$

similarity ratio =  $\frac{2}{3}$

perimeter =  $21 \text{ cm}$

area =  $27 \text{ cm}^2$

$$\frac{2}{3} = \frac{14}{x}$$

$$42 = 2x$$

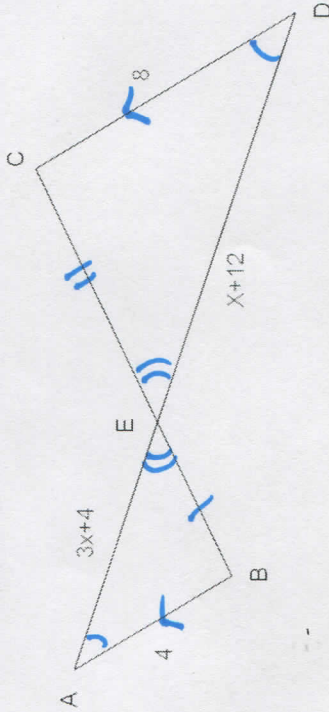
$$21 = x$$

**TASK 2:** Missing information...

Recall from chapter 5, the ways we prove triangles congruent (sandwiches) SSS, ASA, HL, SAS, ASA. What information are we missing below in order to prove these two triangles similar by AA~, SSS~, or SAS~?

$$\overline{BE} \sim \overline{EC}$$

$$AA \sim$$



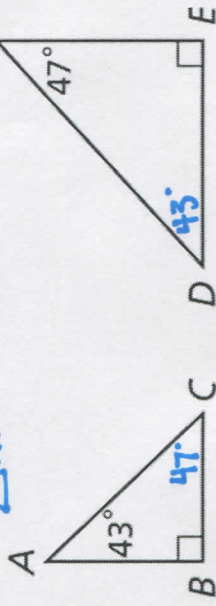
**OBJECTIVE 1:** Angle - Angle Similarity or AA~

POSTULATE	HYPOTHESIS	CONCLUSION
If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.		$\triangle ABC \sim \triangle DEF$

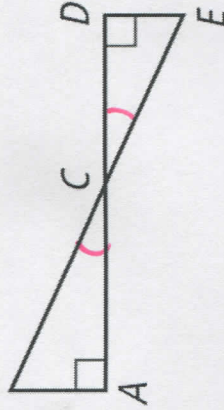
**TASK 3: AA~**

Determine if the following triangles are similar and if so, write a similarity statement.

a)  $\triangle ABC \sim \triangle DEF$



b) B



$\triangle ABC \sim \triangle DEC$

**TASK 4: Real Life Application**

The photo shows a gable roof.  $\overline{AC} \parallel \overline{FG}$ .  $\triangle ABC \sim \triangle FBG$ , Find BA to the nearest tenth of a foot.

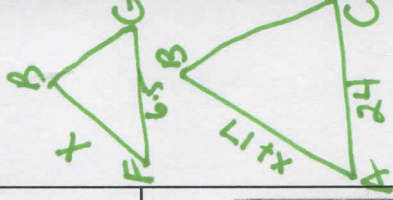
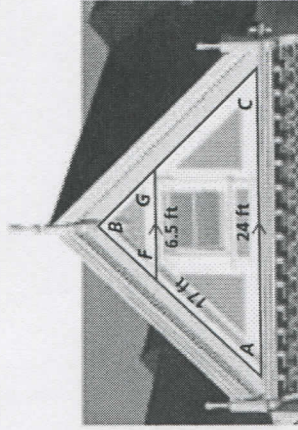
$$\frac{24}{6.5} = \frac{x+17}{x}$$

$$24x = 6.5x + 110.5$$

$$17.5x = 110.5$$

$$x \approx 6.314$$

$$BA \approx 23.3 \text{ ft}$$



**OBJECTIVE 2: Side-Side-Side Similarity or SSS~**

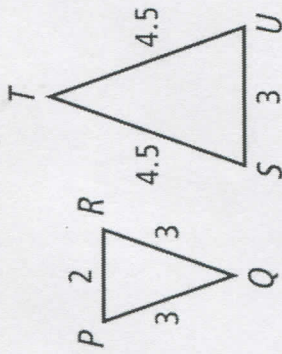
THEOREM	HYPOTHESIS	CONCLUSION
If the three sides of one triangle are proportional to the three corresponding sides of another triangle, then the triangles are similar.		$\triangle ABC \sim \triangle DEF$

**TASK 5: SSS~**

Verify that the triangles are similar if  $\triangle PQR$  and  $\triangle STU$ .

KCF  $\frac{3}{2} = \frac{3}{2} \cdot \frac{2}{1} = \frac{6}{1} = \frac{6}{1}$

$\checkmark \frac{3}{4.5} = \frac{2}{3} = \frac{3}{4.5}$



**OBJECTIVE 3: Side-Angle-Side Similarity or SAS~**

THEOREM	HYPOTHESIS	CONCLUSION
If two sides of one triangle are proportional to two sides of another triangle and their included angles are congruent, then the triangles are similar.	<p><math>\angle B \cong \angle E</math></p>	$\triangle ABC \sim \triangle DEF$

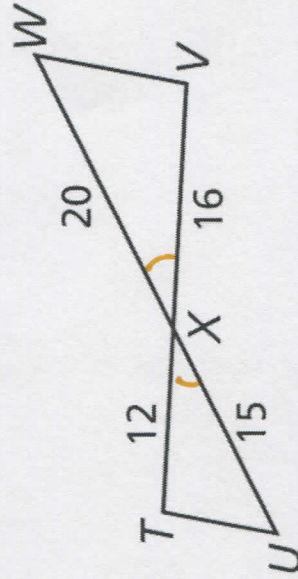
**TASK 6: SAS~**

Verify that  $\triangle TXU \sim \triangle VXW$ .

$\angle X \cong \angle X$  by Def of vertical  $\angle$ 's

$\checkmark \frac{12}{10} = \frac{15}{20} = \frac{3}{4}$   
 $\div 4 \div 5$

SAS~



Still need help with: