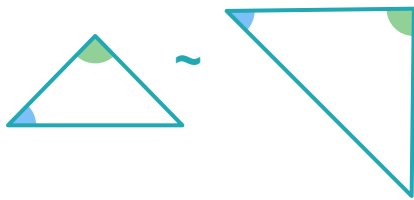
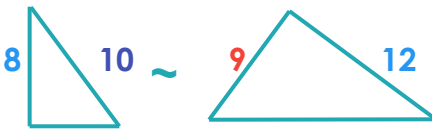


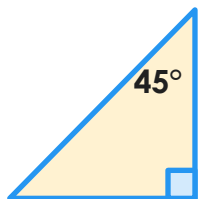
Two **triangles** are **similar** ( $\sim$ ) if they have the same shape.

Similar Triangle Theorems	Examples
<p><b>Angle-Angle (AA) Similarity Theorem</b></p> <p>The triangles are <b>similar</b> (<math>\sim</math>) <math>\longleftrightarrow</math> The triangles share two equal angles.</p>	
<p><b>Side-Side-Side (SSS) Similarity Theorem</b></p> <p>The triangles are <b>similar</b> (<math>\sim</math>) <math>\longleftrightarrow</math> All corresponding side ratios are equal.</p>	 $\frac{10}{15} = \frac{8}{12} = \frac{6}{9}$

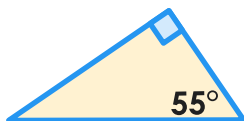
CFU

Which pair of triangles are similar? Explain.

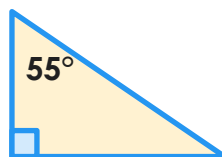
A



B

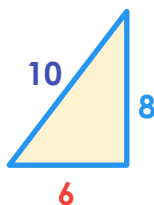


C

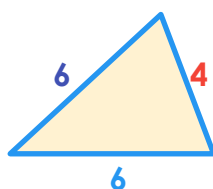


Which pair of triangles are similar? Explain.

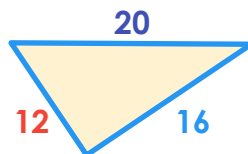
A



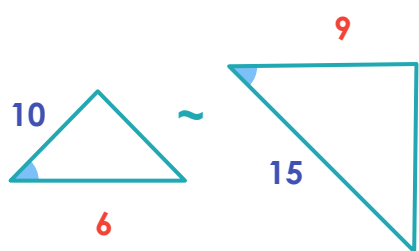
B



C

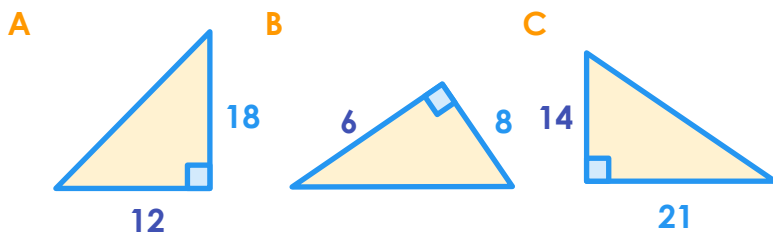


Two **triangles** are **similar** ( $\sim$ ) if they have the same shape.

Similar Triangle Theorems	Examples
<p><b>Side-Angle-Side (SAS) Similarity Theorem</b></p> <p>The triangles are <b>similar</b> (<math>\sim</math>)</p> <p><math>\Updownarrow</math></p> <p>The corresponding side ratios and angles between the sides are equal.</p>	 $\frac{10}{15} = \frac{6}{9}$

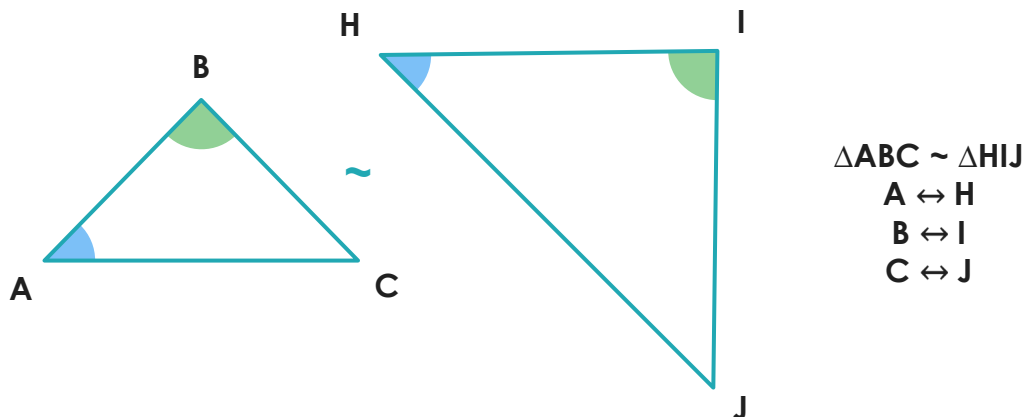
CFU

Which pair of triangles appear to be similar? Explain.



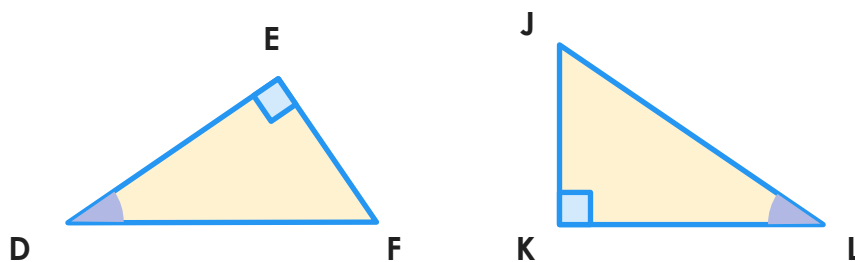
Two **triangles** are **similar** ( $\sim$ ) if they have the same shape.

The notation for **similar triangles** shows the correspondence between the points of each triangle.



## CFU

Which is the geometric notation for these similar triangles? Explain.

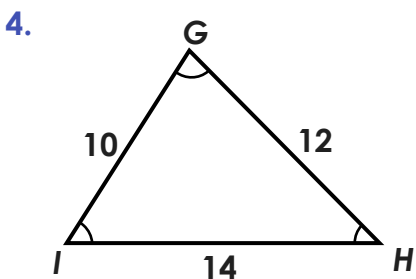
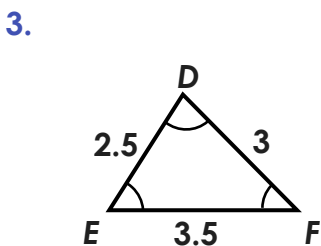
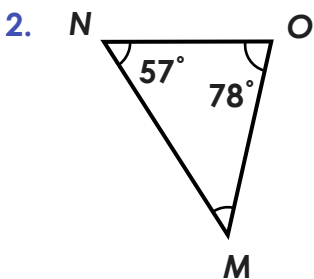
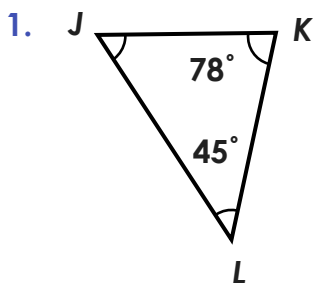
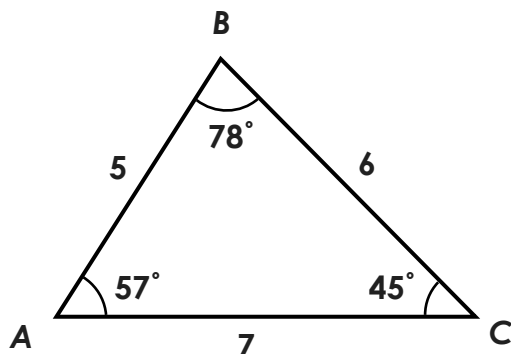


**A**  $\triangle FED \sim \triangle JLK$

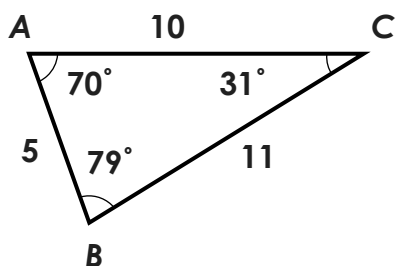
**B**  $\triangle EDF \sim \triangle KLJ$

**C**  $\triangle DEF \sim \triangle JKL$

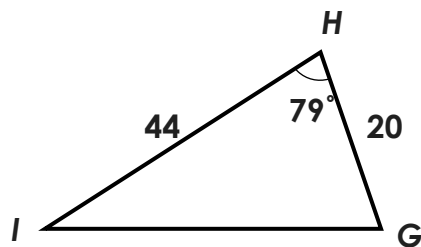
- 1 Identify which similar triangle theorem to use.
- 2 Determine whether the triangles are similar.
- 3 Use geometry notation to write the similarity statement.



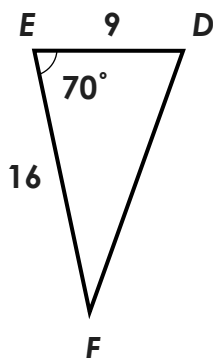
- 1 Identify which similar triangle theorem to use.
- 2 Determine whether the triangles are similar.
- 3 Use geometry notation to write the similarity statement.



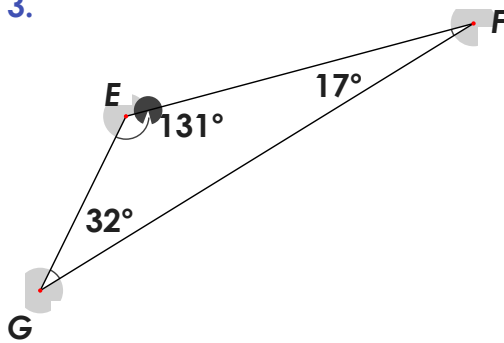
1.



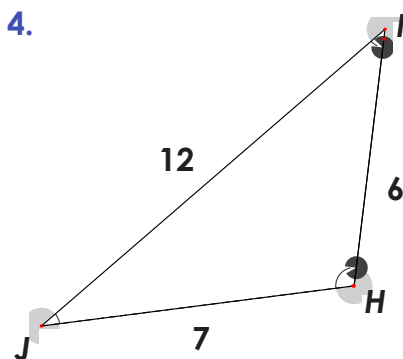
2.



3.

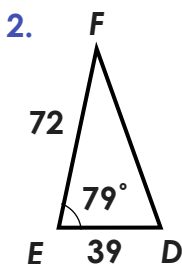
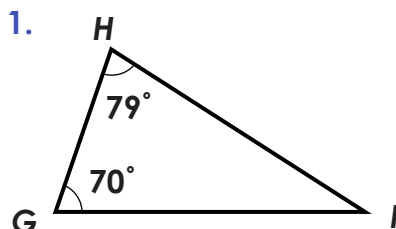
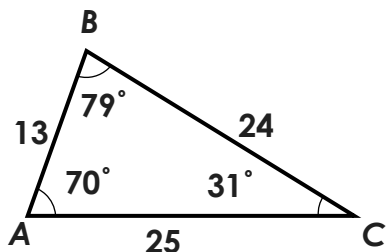


4.



## Skill Closure

- 1 Identify which similar triangle theorem to use.
- 2 Determine whether the triangles are similar.
- 3 Use geometry notation to write the similarity statement.

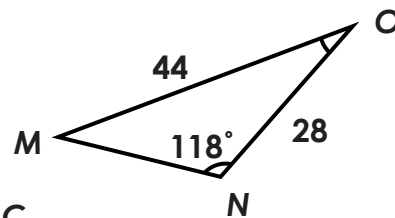
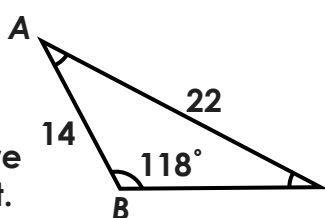


## Concept Closure



### Writing

Emma thinks that the triangles are similar because the two side ratios and angles are equal. Explain why her answer is incorrect.



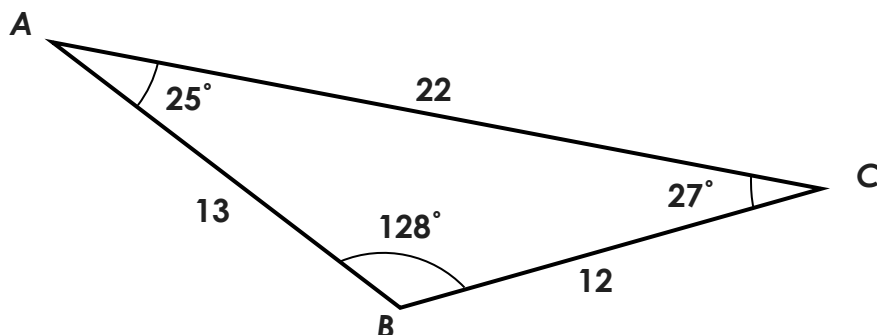
## Summary Closure

What did you learn today about determining similar triangles?

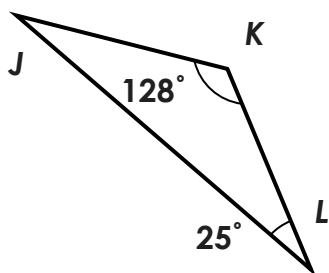
### Word Bank

similar  
triangle  
theorem  
angle  
side ratio  
equal  
angle-angle  
side-side-side  
side-angle-side

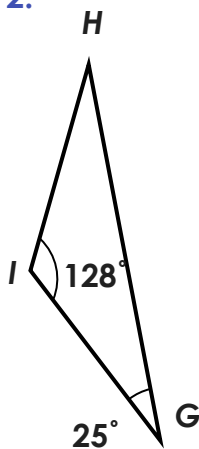
- 1 Identify which similar triangle theorem to use.
- 2 Determine whether the triangles are similar.
- 3 Use geometry notation to write the similarity statement.



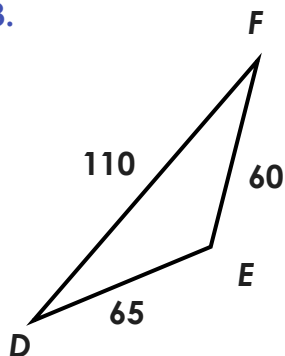
1.



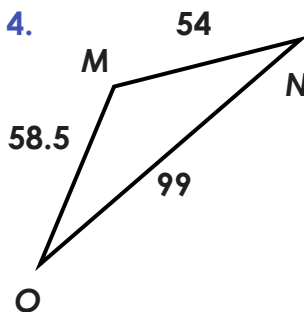
2.



3.

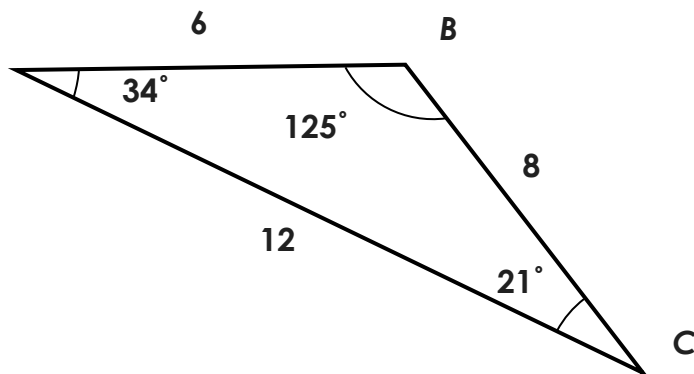


4.

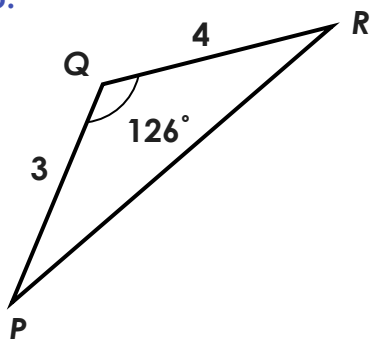


- 1 Identify which similar triangle theorem to use.
- 2 Determine whether the triangles are similar.
- 3 Use geometry notation to write the similarity statement.

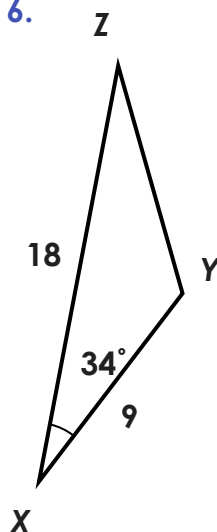
A landscaper is designing two triangular flower beds. The first flower bed is shaped like  $\triangle ABC$ , with sides measuring 6 meters, 8 meters, and 12 meters, and angles of  $34^\circ$ ,  $125^\circ$ , and  $21^\circ$ . Which triangle should she use to create a second flower bed with similar dimensions?



5.

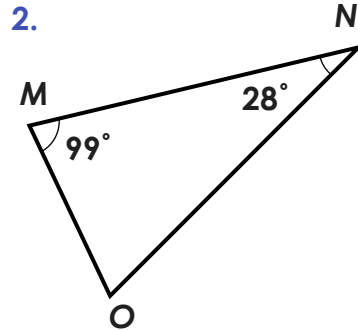
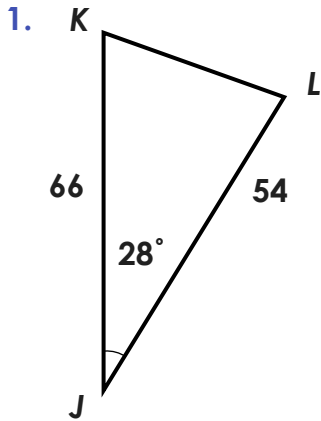
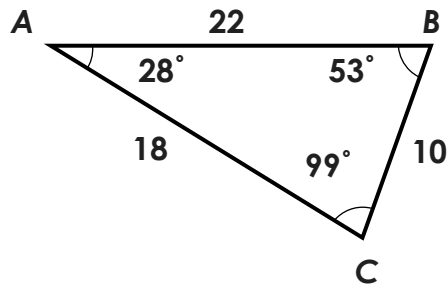


6.



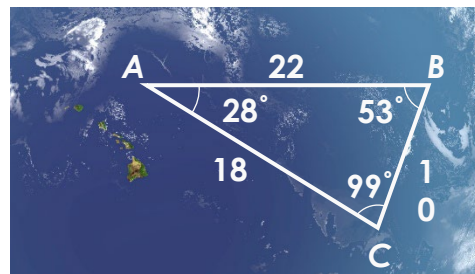


Determine if the given triangle is similar to  $\triangle ABC$ .

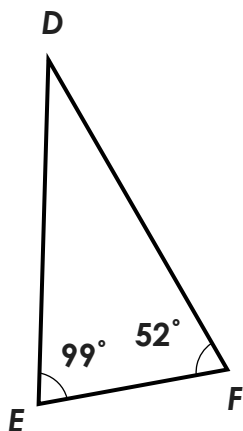


Read and solve the problem. Then, answer the question.

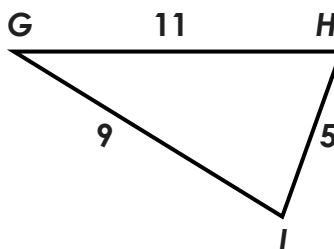
A ship's navigation team is charting out two triangular zones in the ocean for safe travel. The first triangular zone ABC is shown on the diagram to the right. Which triangular design should the team select to create a second zone with the same shape?



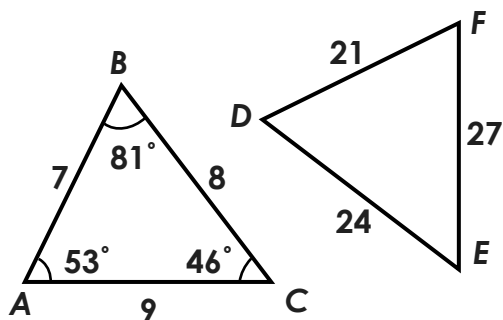
3.



4.



5. Joey thinks he solved this problem correctly. Explain why his answer is incorrect.



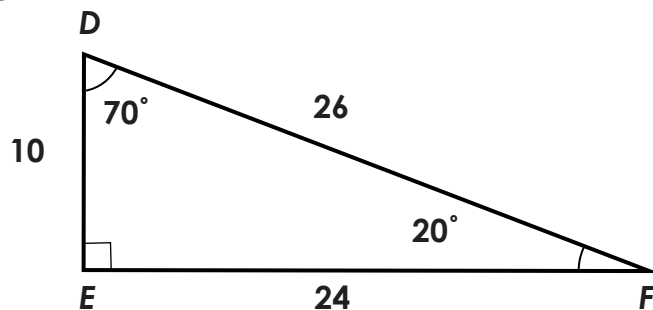
Side-Side-Side

$$\frac{21}{7} = \frac{24}{8} = \frac{27}{9}$$

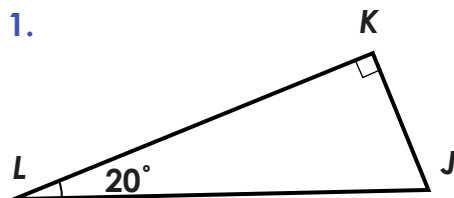
$$3 = 3 = 3$$

$\triangle ABC \sim \triangle DEF$ , because all side ratios are equal.

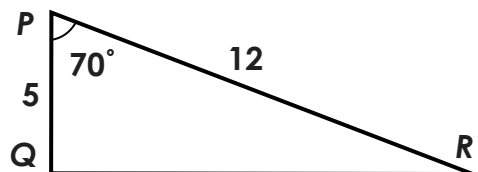
Determine if the given triangle is similar to  $\triangle DEF$ .



1.

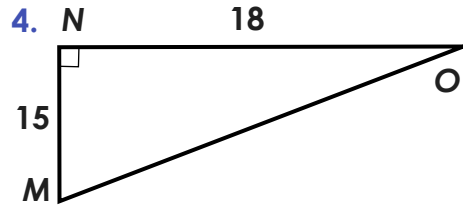
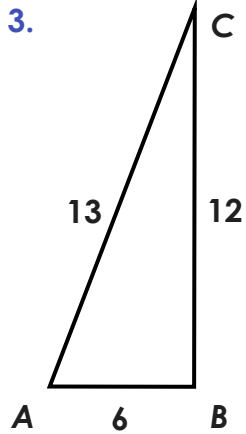
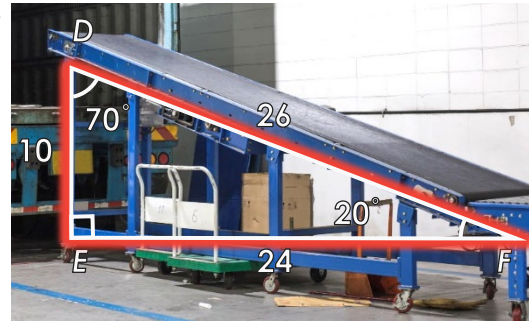


2.

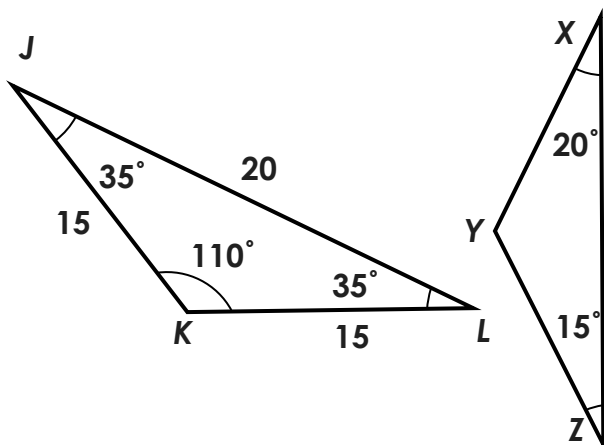


Read and solve the problem. Then, answer the question.

A construction engineer is designing ramps for a warehouse to meet safety standards for transporting goods. The first ramp is represented by  $\triangle DEF$  on the right. Can this engineer use the designs below for a second ramp that must be similar in structure to the first ramp for safety reasons?



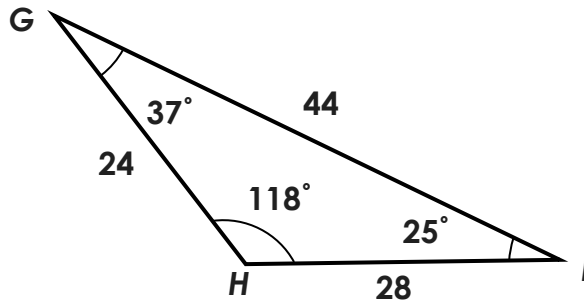
5. Aleyna thinks she solved this problem correctly. Explain why her answer is incorrect.



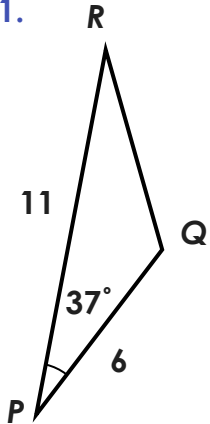
Angle-Angle  
 $m\angle J = m\angle X = 20^\circ$   
 $m\angle L = m\angle Z = 15^\circ$

$\triangle JKL \sim \triangle XYZ$ , because the triangles share two equal angles.

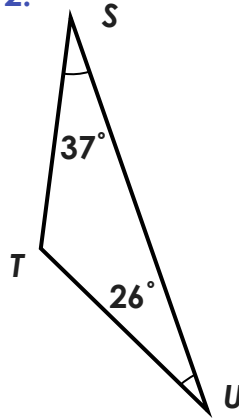
Determine if the given triangle is similar to  $\triangle GHI$ .



1.

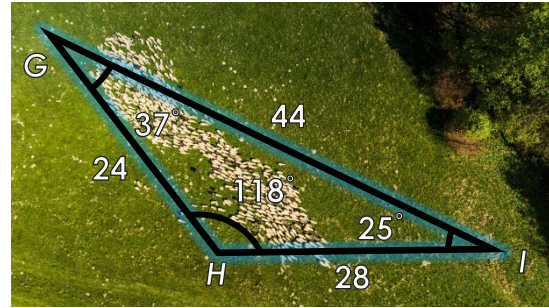


2.

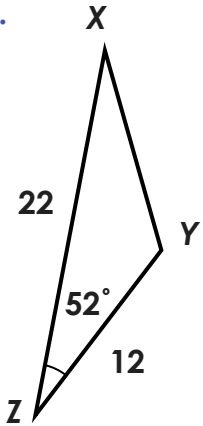


Read and solve the problem. Then, answer the question.

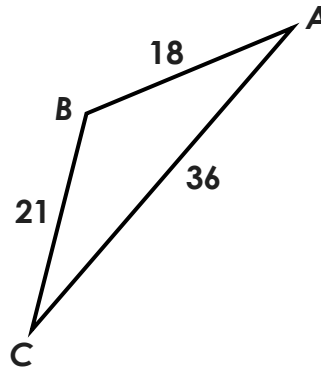
A farmer is creating two triangular grazing zones for her sheep. The first triangular zone,  $\triangle GHI$ , is shown on the right. She wants the second grazing zone to be proportional to the first. Which of the triangles should she use for the second zone?



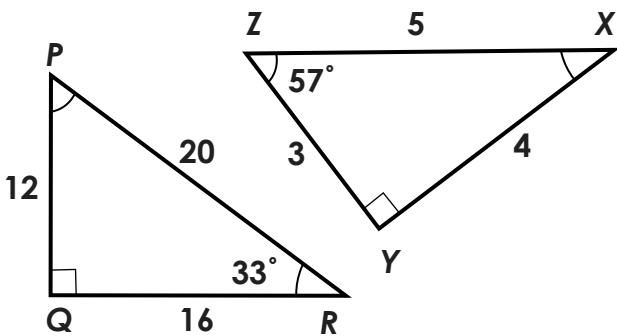
3.



4.



5. Eugene thinks he solved this problem correctly. Explain why his answer is incorrect.



Side-Angle-Side  
 $m\angle R = 33^\circ \neq m\angle Z = 57^\circ$   
 $\frac{3}{16} = \frac{5}{20} \quad \frac{3}{16} \neq \frac{1}{4}$

$\triangle PQR \not\sim \triangle XYZ$ , because the corresponding side ratios and angles between the sides are NOT equal.