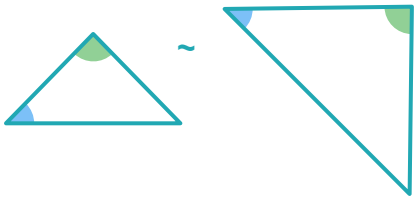
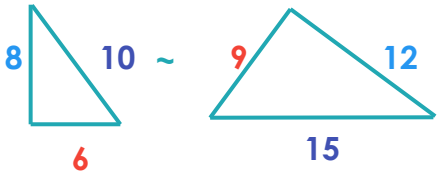
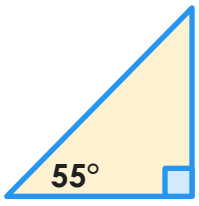
Two **triangles** are **similar (~)** if they have the same shape.

Similar Triangle Theorems	Examples
Angle-Angle (AA) Similarity Theorem The triangles are **similar (~)** ⟷ Two pairs of angles are equal.	
Side-Side-Side (SSS) Similarity Theorem The triangles are **similar (~)** ⟷ All corresponding side ratios are equal.	 $\frac{10}{15} = \frac{8}{12} = \frac{6}{9}$

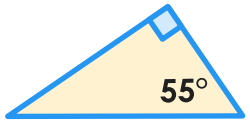
CFU

Which pair of triangles is similar? Explain.

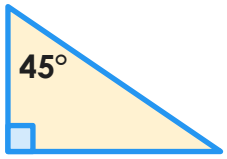
A



B

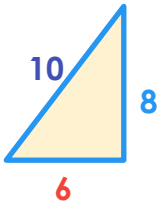


C

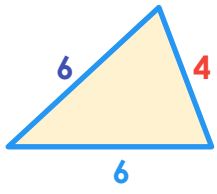


Which pair of triangles is similar? Explain.

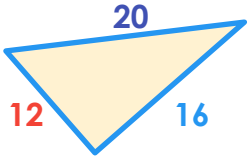
A



B



C



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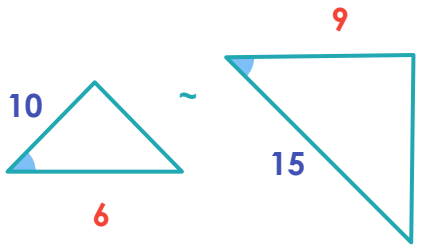
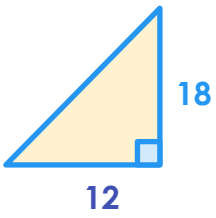
Two **triangles** are **similar** **(~)** if they have the same shape.

Similar Triangle Theorems	Examples
Side-Angle-Side (SAS) Similarity Theorem The triangles are **similar** **(~)** ↕ Two pairs of side ratios and the angle between those sides are equal.	 $\frac{10}{15} = \frac{6}{9}$

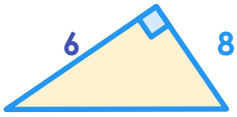
CFU

Which pair of triangles is similar? Explain.

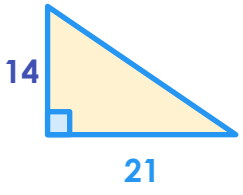
A



B



C



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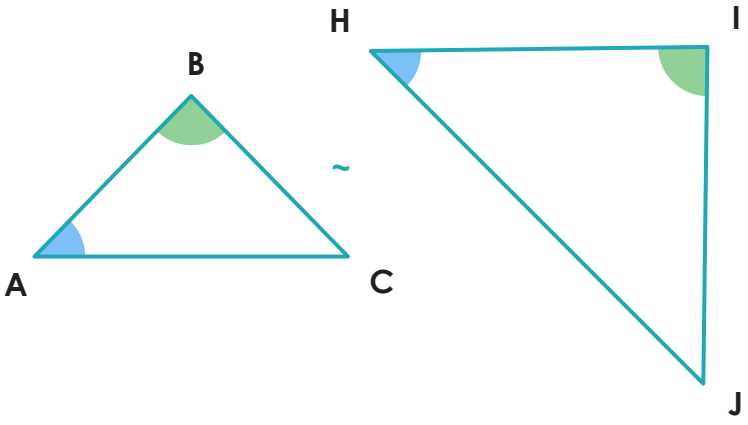
Two **triangles** are **similar** **(~)** if they have the same shape.

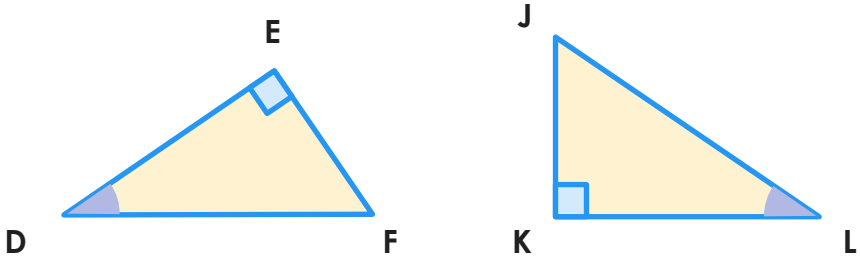
The notation for **similar triangles** shows the correspondence between the points of each triangle.



ΔABC ~ ΔHIJ
A ↔ H
B ↔ I
C ↔ J

CFU

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



A **ΔFED ~ ΔJLK** **B** **ΔEDF ~ ΔKLJ** **C** **ΔDEF ~ ΔJKL**

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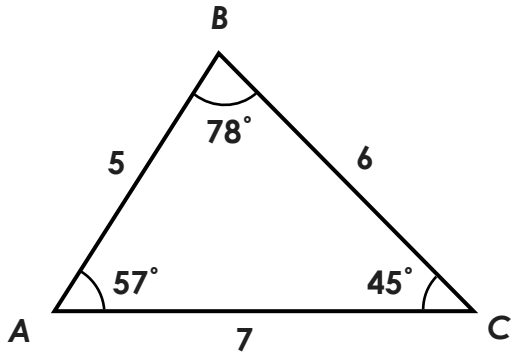
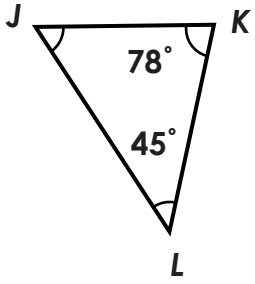
1 Identify which similar triangle theorem to use.
2 Determine whether the triangles are similar.
3 Write and read the similarity statement.

Match sides by length: longest, medium, shortest.



1.



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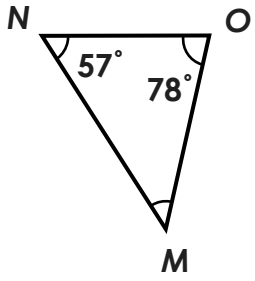

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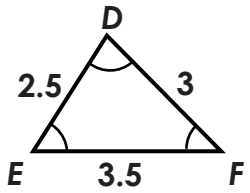

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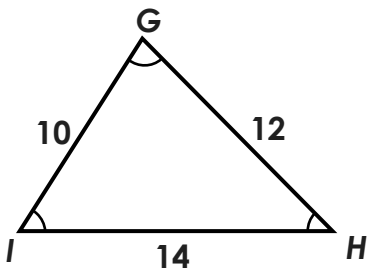

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1 Identify which similar triangle theorem to use.
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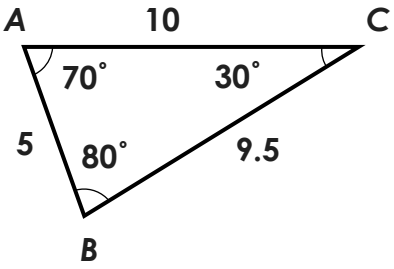

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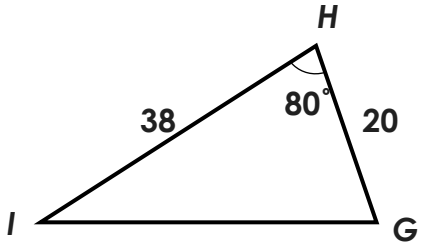
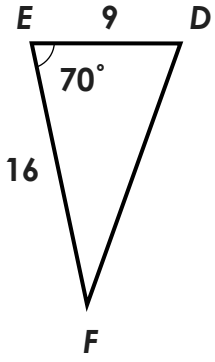
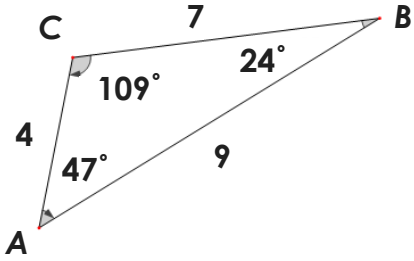


Match sides by length: longest, medium, shortest.

6.





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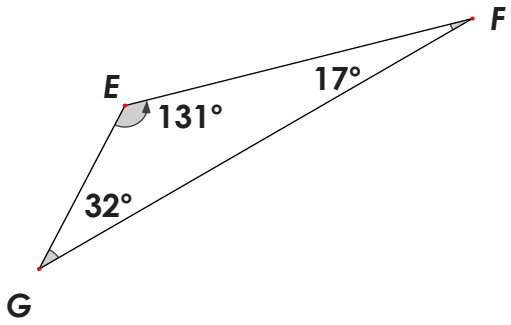

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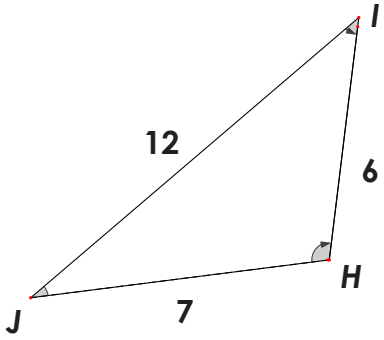

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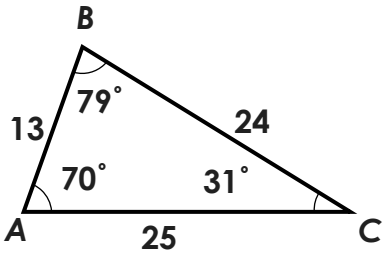
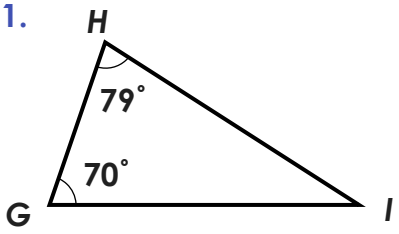
Skill Closure

1 Identify which similar triangle theorem to use.
2 Determine whether the triangles are similar.
3 Write and read the similarity statement.

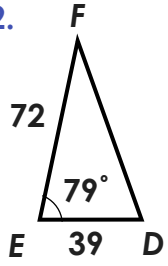


1.



Match sides by length: longest, medium, shortest.

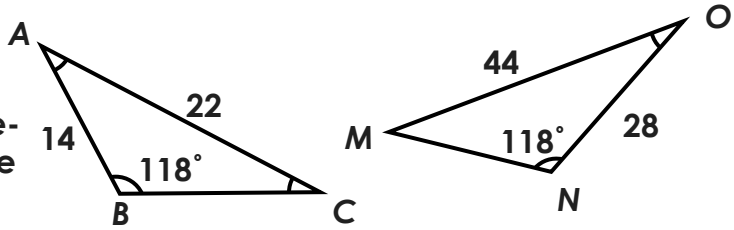
2.



Concept Closure

Writing

Emma says the triangles are similar by Side-Angle-Side because two side ratios and the angles are equal. Explain why Side-Angle-Side cannot be used.



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

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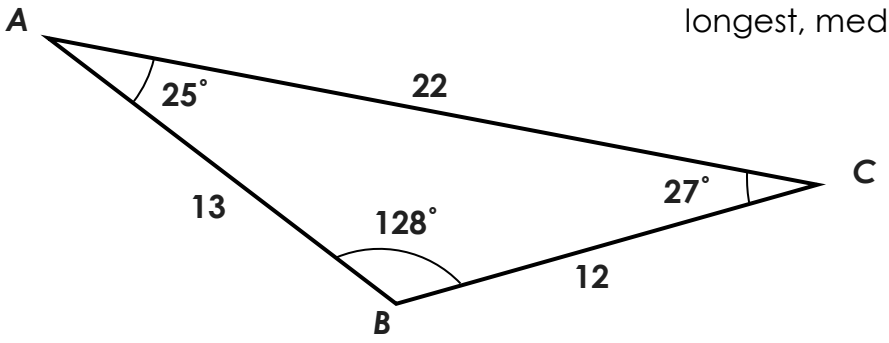
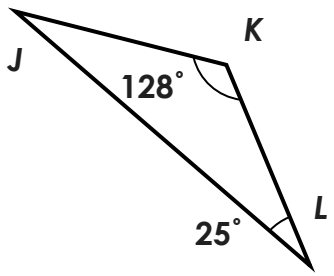
We will determine similar triangles. | **Independent Practice**

1. Identify which similar triangle theorem to use.
2. Determine whether the triangles are similar.
3. Write and read the similarity statement.

Match sides by length:
longest, medium, shortest.



1.



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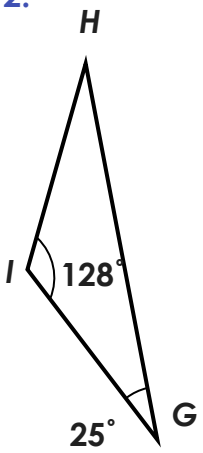

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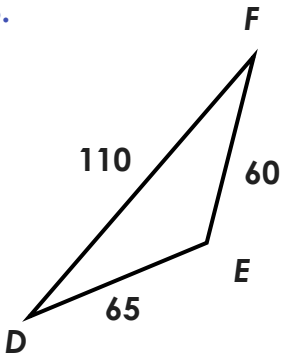

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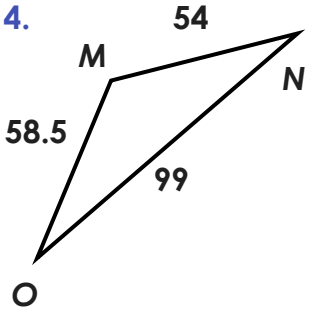

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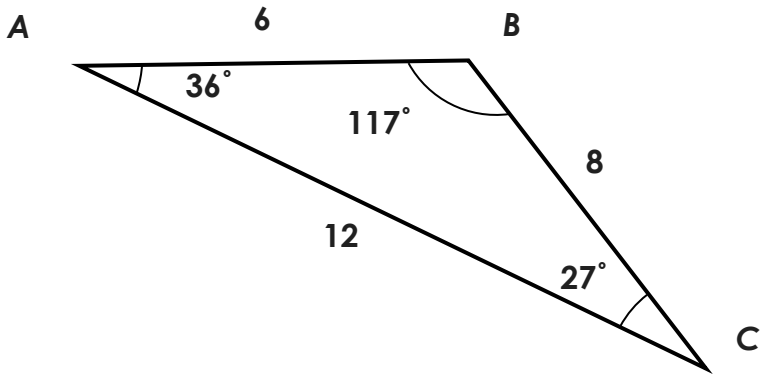
We will determine similar triangles. | **Independent Practice**

1 Identify which similar triangle theorem to use.
2 Determine whether the triangles are similar.
3 Write and read the similarity statement.

A landscaper is designing two triangular flower beds. The first flower bed is shaped like Δ**ABC**, with sides measuring 6 meters, 8 meters, and 12 meters, and angles of 36°, 117°, and 27°. Which triangle should she use to create a second flower bed with a similar shape?

Match sides by length: longest, medium, shortest.



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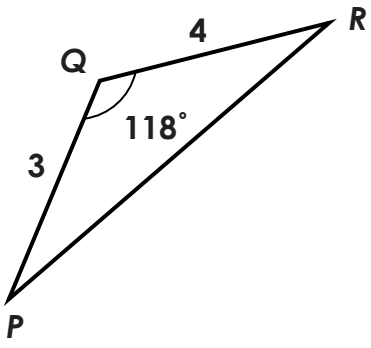

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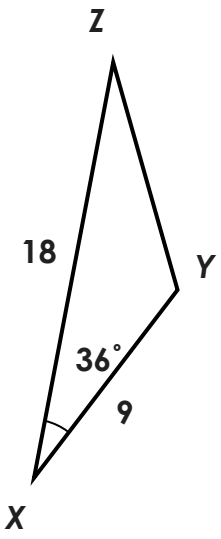

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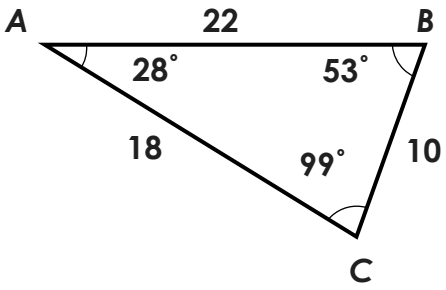
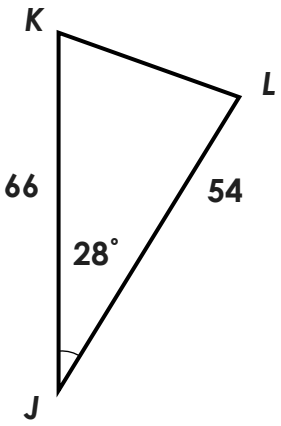
Determine if the given triangle is similar to ΔABC.

Match sides by length: longest, medium, shortest.



1.



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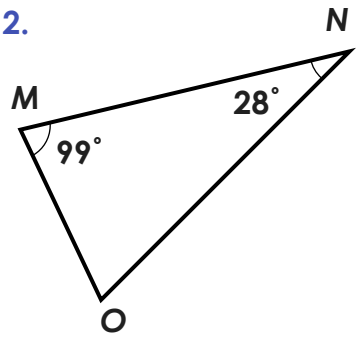

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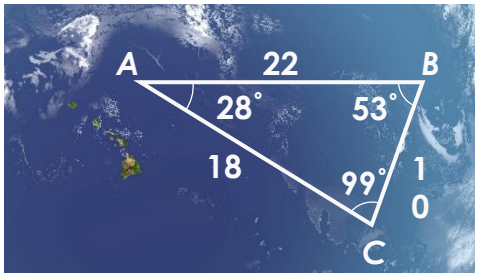
Read and solve the problem. Then, answer the question.

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?



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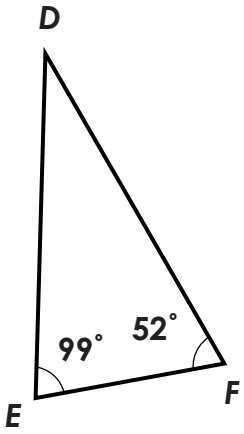

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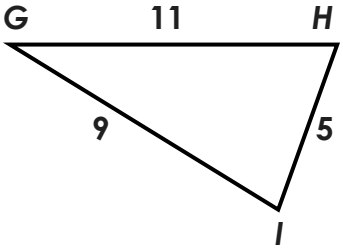
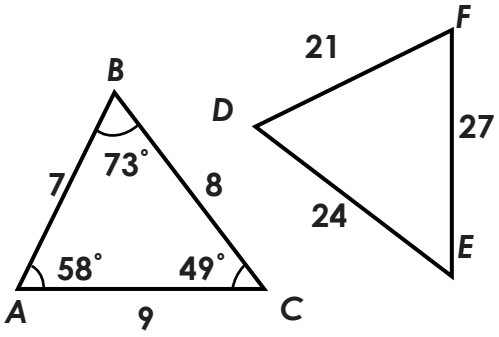


5. Joey thinks he solved this problem correctly. Explain why his answer is incorrect.



Side-Side-Side

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

3 = 3 = 3

△ABC ~ △DEF, because all side ratios are equal.

Match sides by length: longest, medium, shortest.

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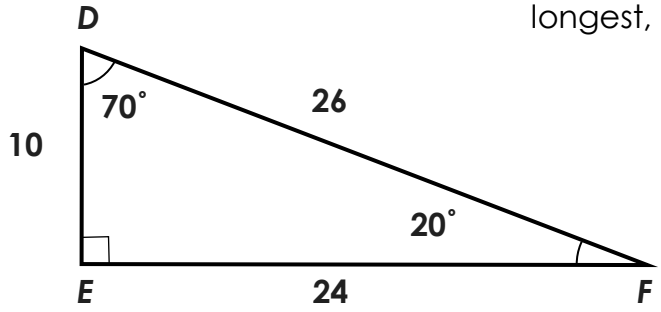
Determine if the given triangle is similar to ΔDEF.

Match sides by length: longest, medium, shortest.



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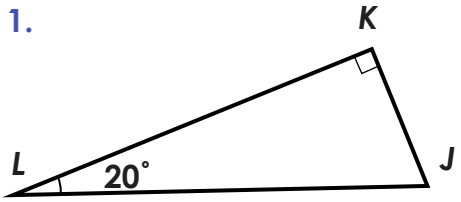

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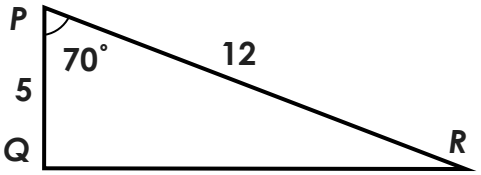

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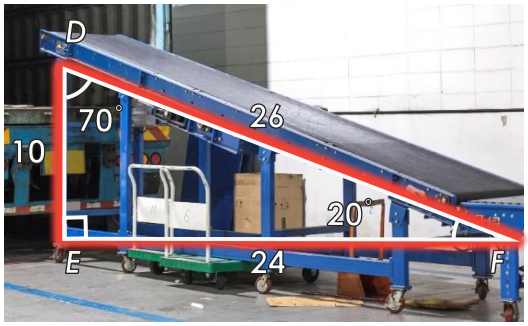
Read and solve the problem. Then, answer the question.

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



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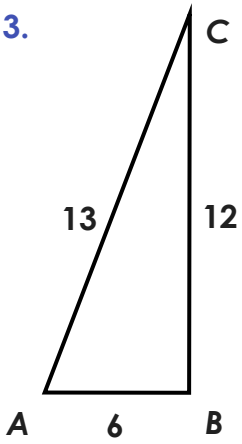

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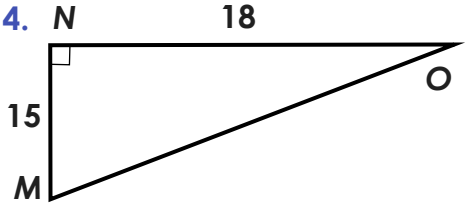
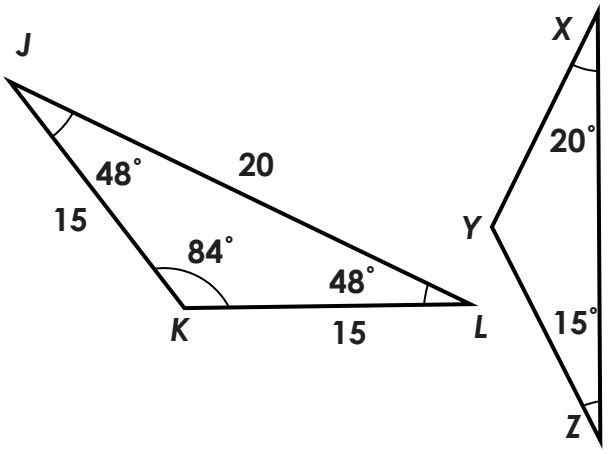


5. Aleyna thinks she solved this problem correctly. Explain why her answer is incorrect.



Angle-Angle

m∠J = m∠X = 20°

m∠L = m∠Z = 15°

ΔJKL ~ ΔXYZ, because the triangles have two equal angles.

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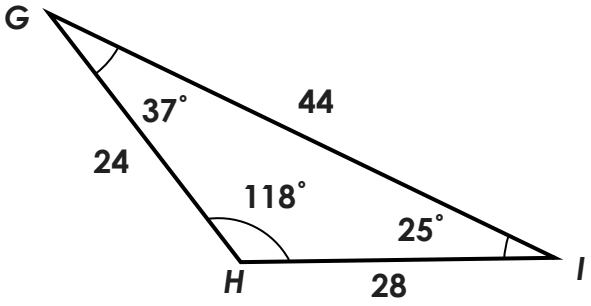
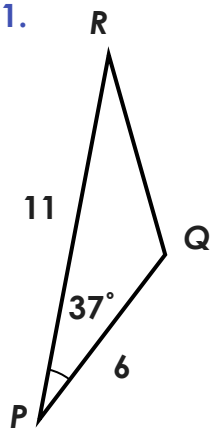
Determine if the given triangle is similar to ΔGHI.



1.



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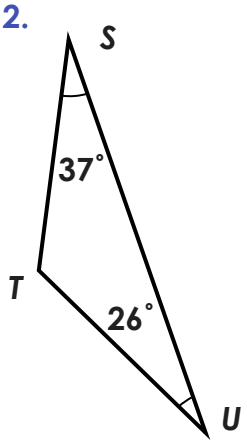

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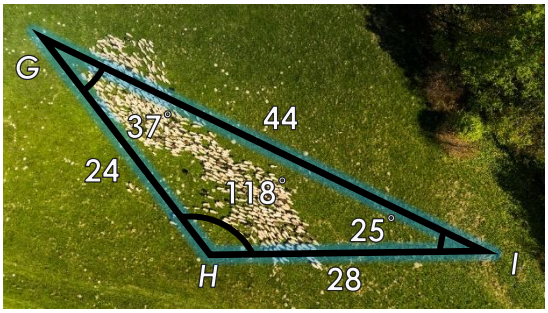
Read and solve the problem. Then, answer the question.

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



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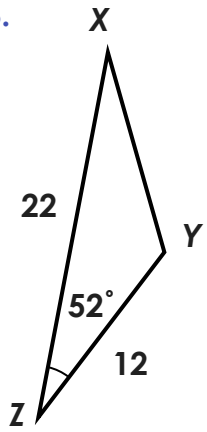

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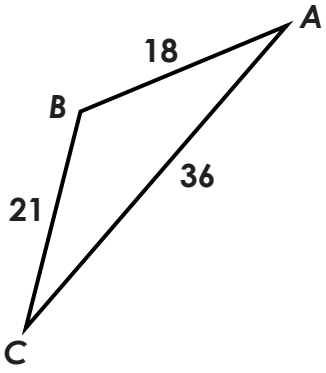
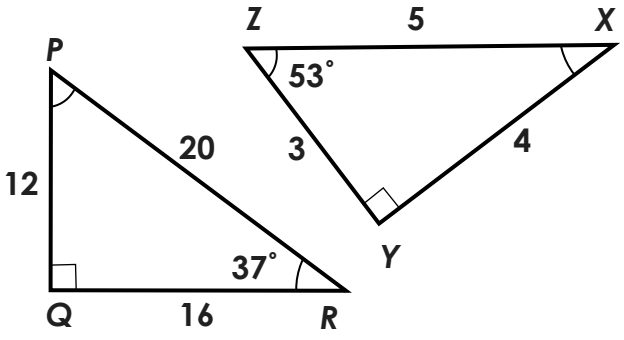


5. Eugene thinks he solved this problem correctly. Explain why his answer is incorrect.



Side-Angle-Side

$m\angle R = 37^\circ \neq m\angle Z = 53^\circ$

$\frac{3}{16} = \frac{5}{20}$ $\frac{3}{16} \neq \frac{1}{4}$

ΔPQR ~ ΔXYZ, because the corresponding side ratios and angles between the sides are NOT equal.

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