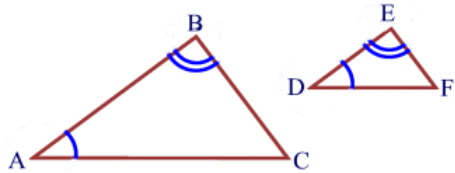


6B – Recognizing Similarity

❖ Vocabulary, Formulas, Theories:

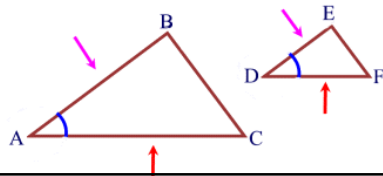
- **Similar Figures:** figures that are the same shape but not necessarily the same size.
- **Scale Factor:** the ratio of corresponding sides of similar figures.

- **Angle Angle Similarity (AA~):** If two angles of one triangles are congruent to two angles of another triangle, the triangles are similar.



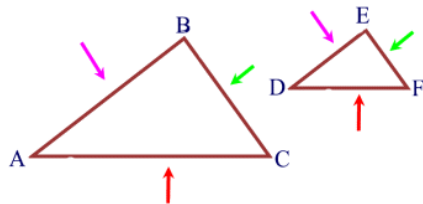
If: $\sphericalangle A \cong \sphericalangle D$
 $\sphericalangle B \cong \sphericalangle E$
 Then: $\triangle ABC \sim \triangle DEF$

- **Side Angle Side Similarity (SAS~):** If an angle of one triangle is congruent to the corresponding angle of another triangle and the length of the sides including these angles are in proportion, the triangles are similar.



If: $\sphericalangle A \cong \sphericalangle D$
 $\frac{AB}{DE} = \frac{AC}{DF}$
 Then: $\triangle ABC \sim \triangle DEF$

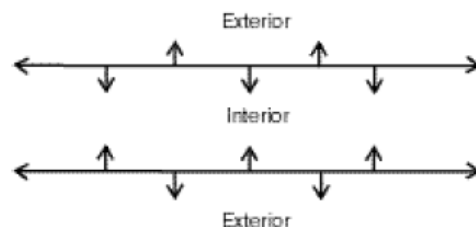
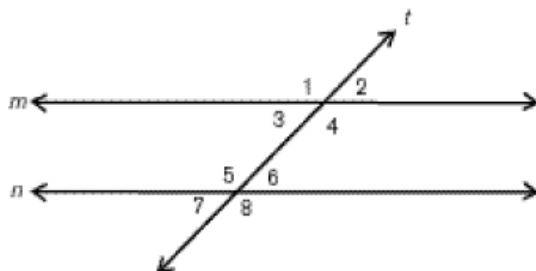
- **Side Side Side Similarity (SSS~):** If the three sets of corresponding sides of two triangles are in proportion, the triangles are similar.



If: $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$
 Then: $\triangle ABC \sim \triangle DEF$

- **Parallel Lines Cut by a Transversal:** a set of parallel lines that is crossed by a lined called a transversal creates several congruent angles and supplementary angles.

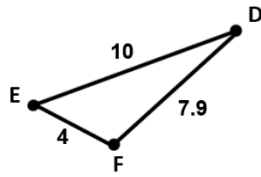
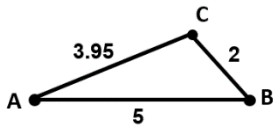
- Corresponding Angles: $\sphericalangle 1 \cong \sphericalangle 5$, $\sphericalangle 2 \cong \sphericalangle 6$, $\sphericalangle 3 \cong \sphericalangle 7$, $\sphericalangle 4 \cong \sphericalangle 8$
- Vertical Angles: $\sphericalangle 1 \cong \sphericalangle 4$, $\sphericalangle 2 \cong \sphericalangle 3$, $\sphericalangle 5 \cong \sphericalangle 8$, $\sphericalangle 6 \cong \sphericalangle 7$
- Alternate Interior Angles: $\sphericalangle 3 \cong \sphericalangle 6$, $\sphericalangle 4 \cong \sphericalangle 5$
- Alternate Exterior Angles: $\sphericalangle 1 \cong \sphericalangle 8$, $\sphericalangle 2 \cong \sphericalangle 7$
- Supplementary Angles: $\sphericalangle 1$ and $\sphericalangle 2$, $\sphericalangle 1$ and $\sphericalangle 3$, $\sphericalangle 1$ and $\sphericalangle 6$, $\sphericalangle 1$ and $\sphericalangle 7$, $\sphericalangle 2$ and $\sphericalangle 4$, $\sphericalangle 2$ and $\sphericalangle 8$, $\sphericalangle 2$ and $\sphericalangle 5$, $\sphericalangle 3$ and $\sphericalangle 4$, $\sphericalangle 3$ and $\sphericalangle 5$, $\sphericalangle 3$ and $\sphericalangle 8$, $\sphericalangle 4$ and $\sphericalangle 6$, $\sphericalangle 5$ and $\sphericalangle 6$, $\sphericalangle 5$ and $\sphericalangle 7$, $\sphericalangle 6$ and $\sphericalangle 8$, $\sphericalangle 7$ and $\sphericalangle 8$.



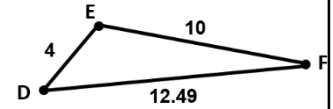
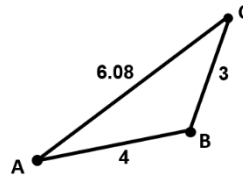
Video - ["Similarity - Side Side Side - Example" - MathontheWeb \(3:10\)](#)

EX1) Determine if the triangles are similar. If so, state the reason why. If not, explain.

a)



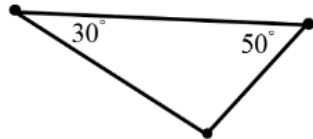
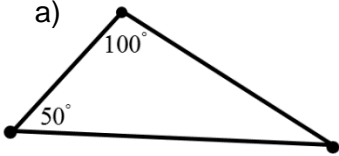
b)



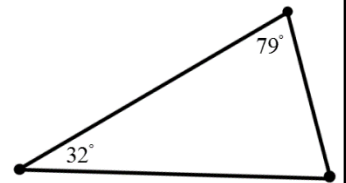
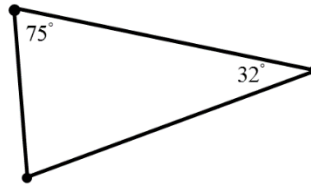
Video - ["Similarity - Angle Angle - Example" - MathontheWeb \(4:37\)](#)

EX2) Determine if the triangles are similar. If so, state the reason why. If not, explain.

a)

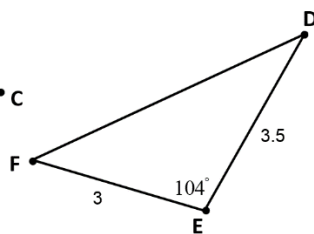
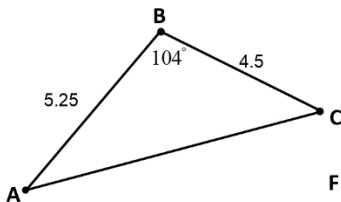


b)

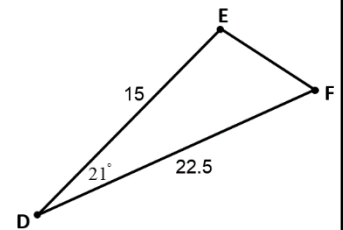
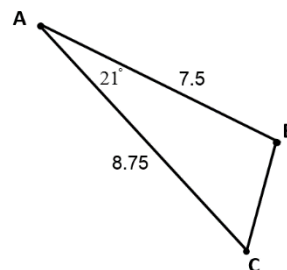


Video - ["Similarity - Side Angle Side - Example" - MathontheWeb \(4:47\)](#)

EX3) Determine if the triangles are similar. If so, state the reason why. If not, explain.

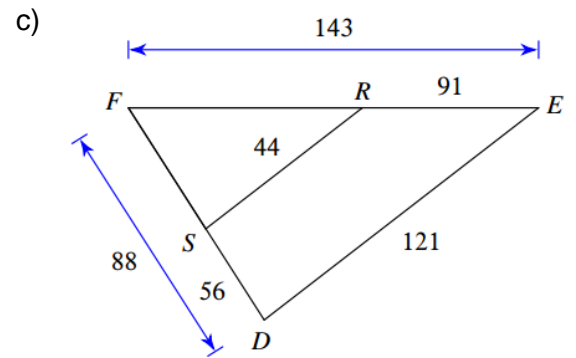
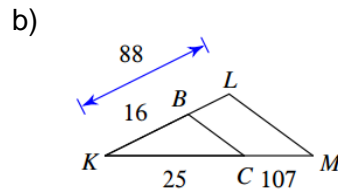
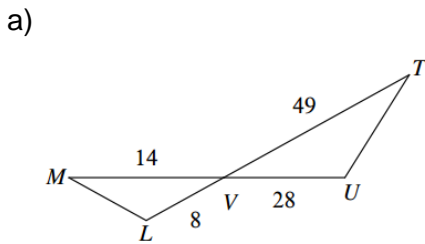


b)



Video - "Similarity - Connect Triangles - Example" - MathontheWeb (10:54)

EX4) Determine if the triangles are similar. If so, state the reason why. If not, explain.



Video - "Similarity - Two Column Proof - Example" - MathontheWeb (6:04)

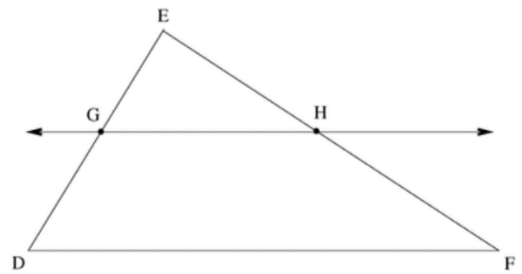
EX5) Complete a two column proof.

Given :

- $\angle F$ and $\angle FHG$ are supplementary

Prove :

$$\triangle DEF \sim \triangle GEH$$



❖ Extra Resources:

<https://www.mathsisfun.com/geometry/parallel-lines.html>