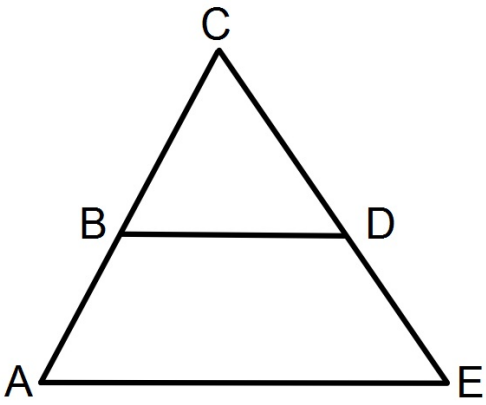
Bellwork

Given: ∠C = 80°
∠E = 40°
BD | | AE

Prove: ΔCBD ~ ΔCAE



Statements	Reasons

Proving Triangle Similarity

Throughout this unit we will be focusing on several methods of proving two triangles are similar including:

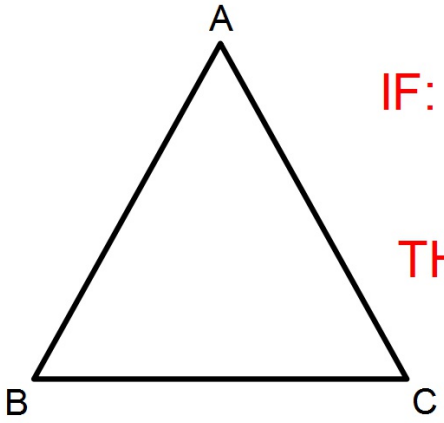
1. Angle-Angle (AA)
2. Side-Side-Side (SSS)
   [This is the main focus of this lesson]
3. Side-Angle-Side (SAS)

Similarity by Side-Side-Side

Side-Side-Side (SSS) Similarity Theorem:

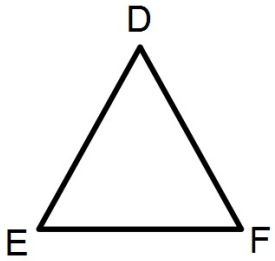
If the corresponding side lengths of two triangles are proportional,

Then the triangles are similar.



IF: $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$

THEN: $\Delta ABC \sim \Delta DEF$

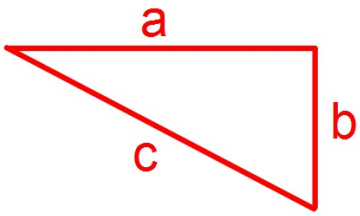


Useful Information

Pythagorean Theorem:

Given a right triangle with legs of length a and b, and hypotenuse of length c...

$a^2 + b^2 = c^2$



Use this equation to find missing sides after stating the triangles are right triangles.

Comparing Sides:

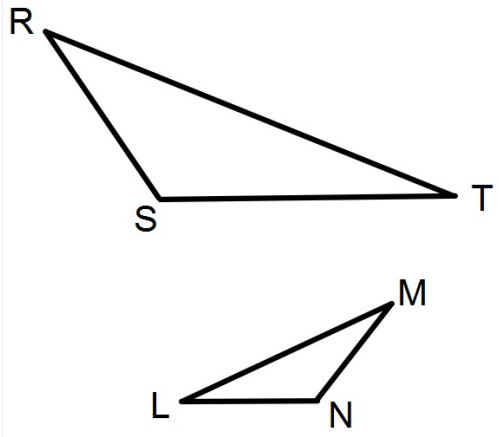
When comparing sides in triangles that are not right triangles, compare each side separately and state what you did to reduce as your reason .

(Ex. Divided top/bottom by 3 to reduce)

Example

Given: RS = 15
ST = 30
RT = 45
LM = 27
MN = 9
LN = 18

Prove: $\Delta RST \sim \Delta MNL$



Example

Given: $WX \perp XY$
$QR \perp RS$
$WX = 15$
$QR = 6$
$XY = 20$
$RS = 8$

Prove: $\Delta WXY \sim \Delta QRS$