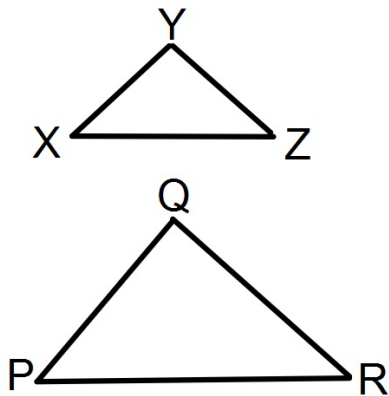


# Bellwork

**Given:**  $XY = 15$   
 $YZ = 27$   
 $XZ = 30$   
 $PQ = 25$   
 $QR = 45$   
 $PR = 50$

**Prove:**  $\triangle XYZ \sim \triangle PQR$



Statements

Reasons

## **Proving Triangle Similarity**

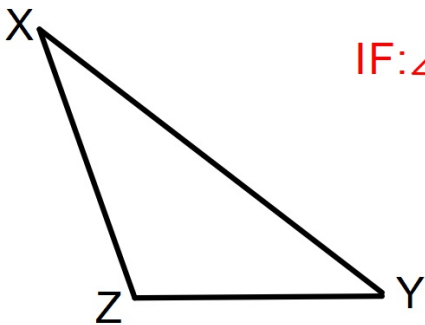
Throughout this unit we will be focusing on several methods of proving two triangles are similar including:

1. Angle-Angle (AA)
2. Side-Side-Side (SSS )
3. Side-Angle-Side (SAS)

**[This is the main focus of this lesson]**

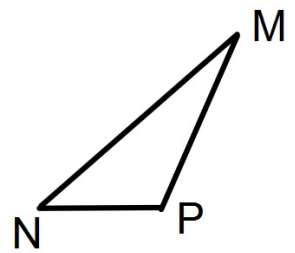
## Similarity by Side-Angle-Side

Side-Angle-Side (SAS) Similarity Theorem:  
If an angle of one triangle is congruent to  
an angle of another triangle AND the  
lengths of the sides including these  
angles are proportional,  
Then the triangles are similar.



$$\text{IF: } \angle X \cong \angle M \text{ and } \frac{ZX}{PM} = \frac{XY}{MN}$$

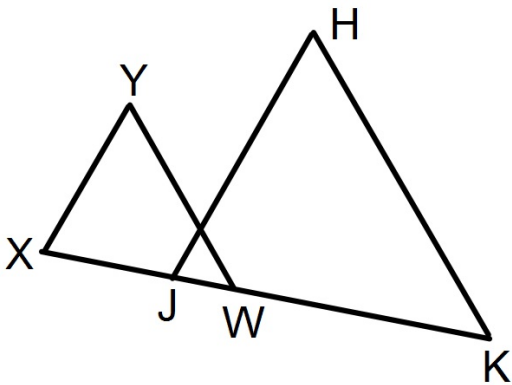
$$\text{THEN: } \triangle XYZ \sim \triangle MNP$$



## Example

**Given:**  $XY = 33$   
 $JH = 44$   
 $XW = 39$   
 $JK = 52$   
 $XY \parallel JH$

**Prove:**  $\triangle JHK \sim \triangle XYW$



Statements

Reasons

## Example

**Given:**  $WX \perp XY$   
 $QR \perp RS$   
 $WX = 20$   
 $QR = 5$   
 $XY = 48$   
 $RS = 12$

**Prove:**  $\triangle WXY \sim \triangle QRS$

