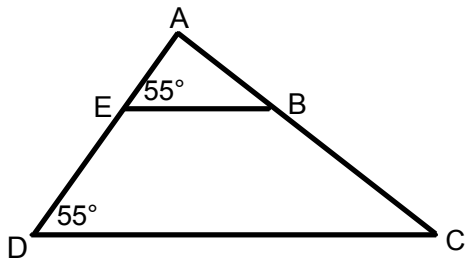
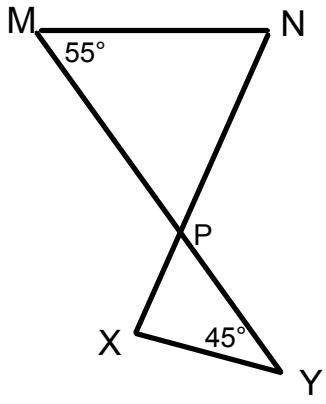
No Bellwork
12/07/2011

Determine if the two triangles are similar. If they are, write a similarity statement.

1.



2.



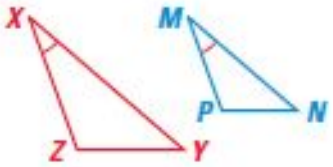
Geometry
6.5 Prove Triangles Similar by SSS and SAS
Standard(s): 3,7

Vocabulary:

THEOREM *For Your Notebook*

THEOREM 6.3 Side-Angle-Side (SAS) Similarity Theorem

If an angle of one triangle is congruent to an angle of a second triangle and the lengths of the sides including these angles are proportional, then the triangles are similar.



If $\angle X \cong \angle M$ and $\frac{ZX}{PM} = \frac{XY}{MN}$, then $\triangle XYZ \sim \triangle MNP$.

Proof: Ex. 37, p. 395

THEOREM *For Your Notebook*

THEOREM 6.2 Side-Side-Side (SSS) Similarity Theorem

If the corresponding side lengths of two triangles are proportional, then the triangles are similar.

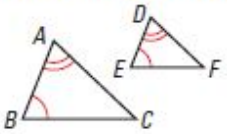
If $\frac{AB}{RS} = \frac{BC}{ST} = \frac{CA}{TR}$, then $\triangle ABC \sim \triangle RST$.

Proof: p. 389

CONCEPT SUMMARY *For Your Notebook*

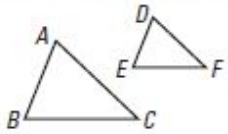
Triangle Similarity Postulate and Theorems

AA Similarity Postulate



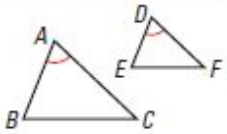
If $\angle A \cong \angle D$ and $\angle B \cong \angle E$, then $\triangle ABC \sim \triangle DEF$.

SSS Similarity Theorem



If $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.

SAS Similarity Theorem



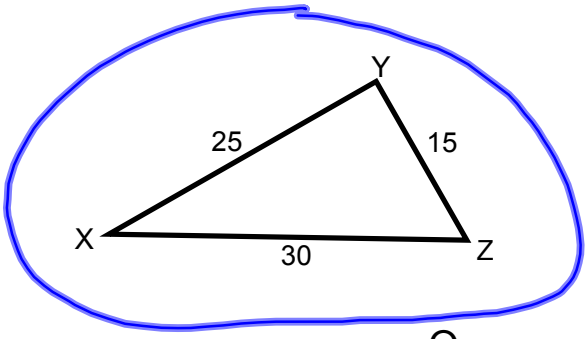
If $\angle A \cong \angle D$ and $\frac{AB}{DE} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.

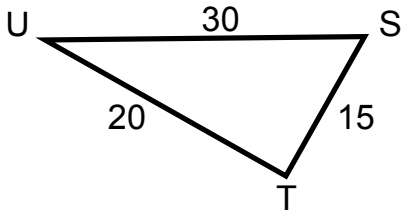
Use the SSS Similarity Theorem

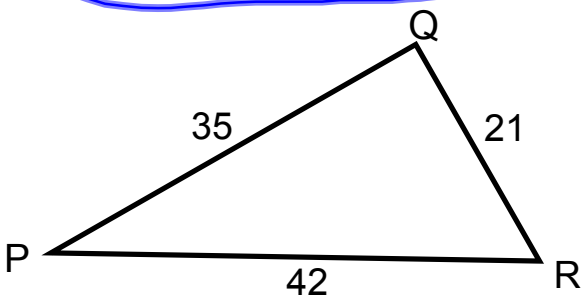
Is either ΔPQR or ΔSTU similar to ΔXYZ?

$\triangle PQR \sim \triangle XYZ$?

$\triangle STU \sim \triangle XYZ$?







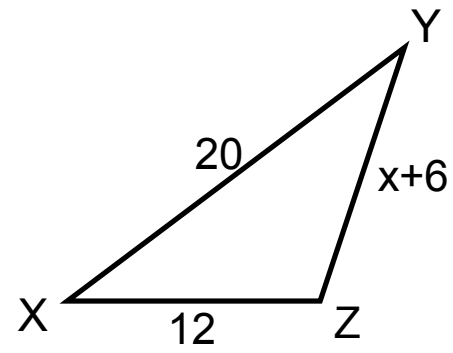
$\frac{15}{25}$ $\frac{20}{15}$ X

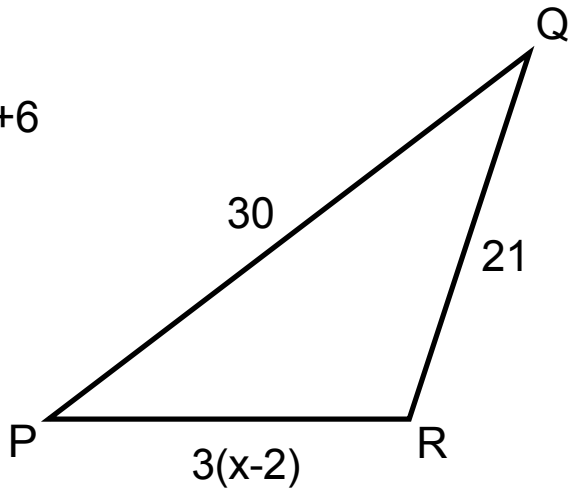
$\frac{3}{5}$ $\frac{4}{3}$

***Do the ratios of all three pairs of corresponding sides have to be equal if the three triangles are similar?**

Use the SSS Similarity Theorem

Find the value of x that makes $\Delta XYZ \sim \Delta PQR$.





$\frac{20}{30} = \frac{(x+6)}{21}$

$42 = 3x + 18$

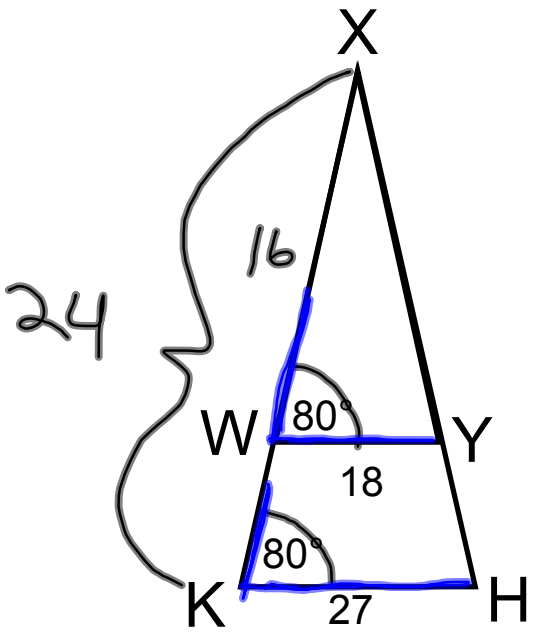
$3x = 24$

$x = 8$

***How is the scale factor used to find x?**

Use the SAS Similarity Theorem

You enlarge ΔXYW to ΔXHK as shown. Is ΔXYW similar to ΔXHK?



$\frac{18}{27}$ $\frac{16}{24}$

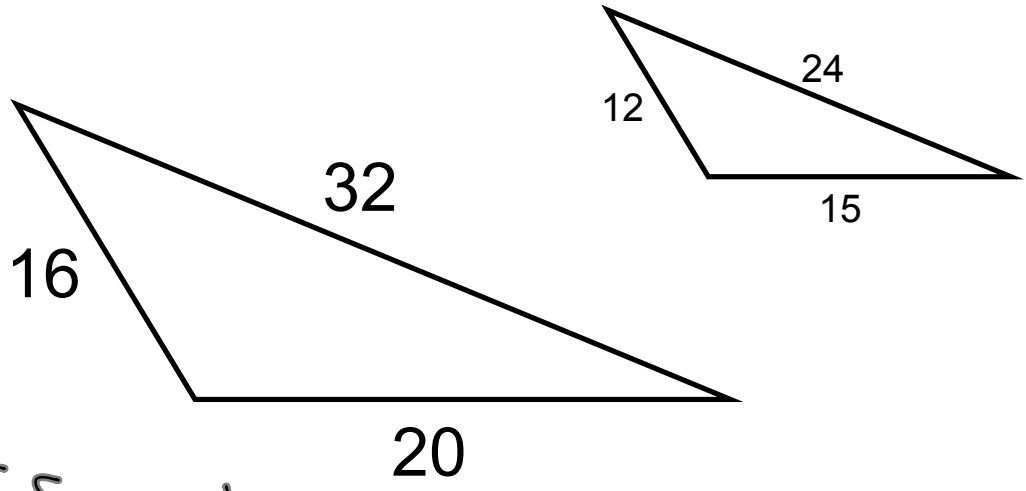
$\frac{2}{3} = \frac{2}{3}$ ✓

SAS ≅ thm.

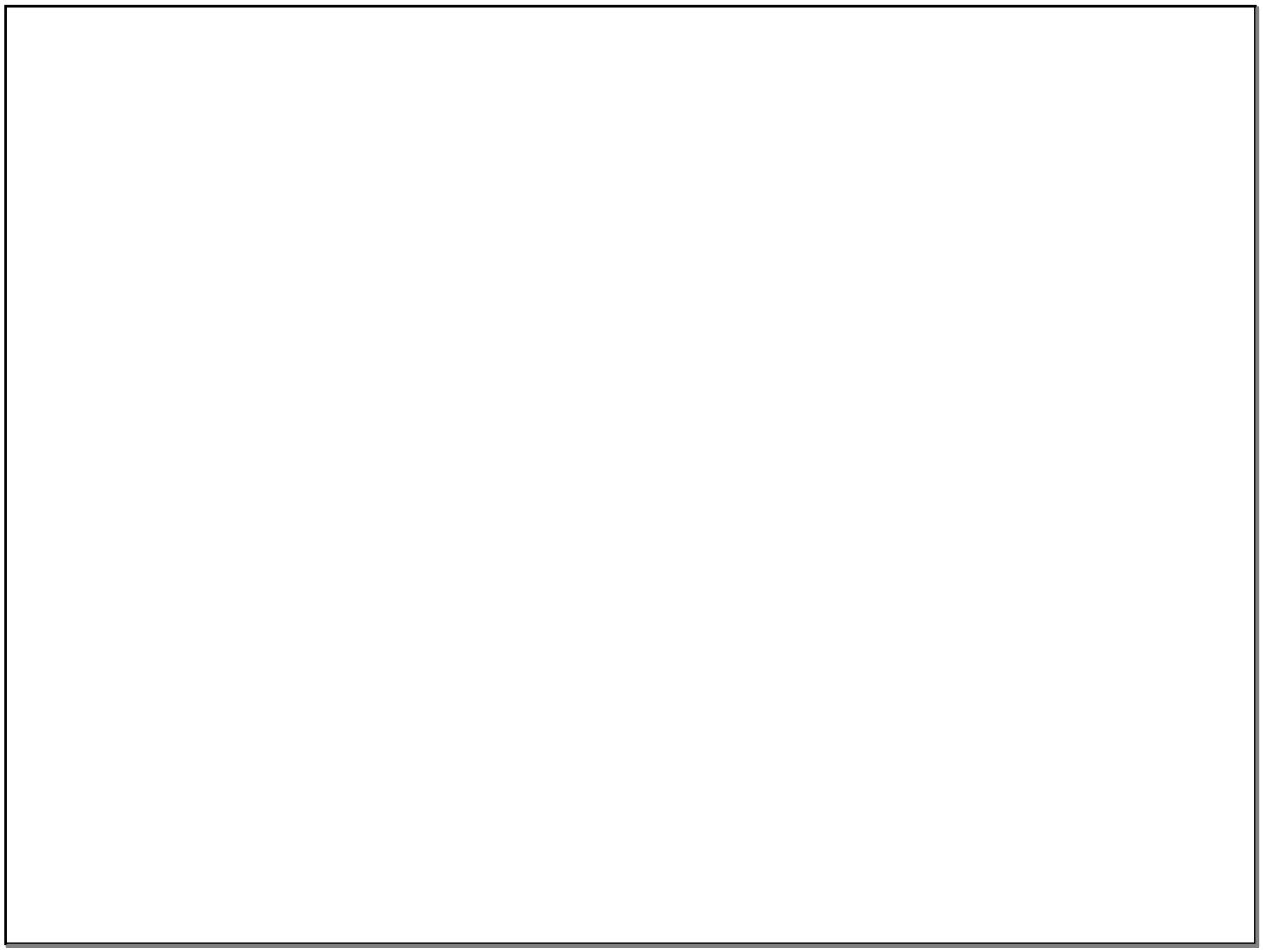
XW=16, XK=24

Choose a Method

Tell what method you would use to show that the triangles are similar.



SSS ~ thm.
because we have
no ∠ info.

Homework Assignment

Worksheet 6.5B