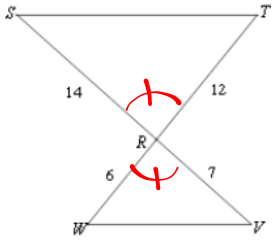
Name:_____ Date:_____ Period:_____

Geometry 1-2
Proving Triangles are Similar

State if the triangles in each pair are similar. If so, state how you mathematically determined if they were similar or not (show your work). If they were similar provide theorem or postulate that proves they are similar, the scale factor and write the similarity statement.

Example 1



~~SSS~~ SAS ~~AA~~

LONG SIDES / SHORT SIDES

$\frac{14}{7} = \frac{12}{6}$

$\frac{2}{1} = \frac{2}{1}$ ✓

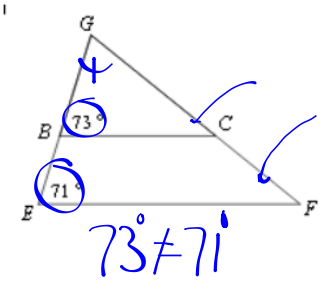
$\measuredangle SRT \cong \measuredangle TRW$

Similar: Yes or No If yes by which theorem or postulate: SAS Scale Factor: $\frac{2}{1}$

Similarity Statement: $\triangle SRT \sim \triangle TRW$

Example 2

$\measuredangle BGC \cong \measuredangle EGF$



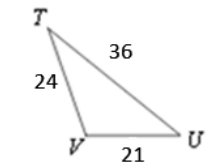
$\measuredangle GCB$ CANNOT BE THE SAME SIZE AS $\measuredangle GFE$!

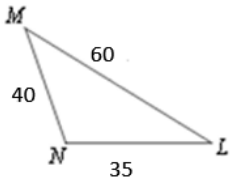
$73° \neq 71°$

Similar: Yes or No If yes by which theorem or postulate: N/A Scale Factor: N/A

Similarity Statement: N/A

3.





LARGE SIDES: $\frac{36}{60}$? MED. SIDES: $\frac{24}{40}$? SMALL SIDES: $\frac{21}{35}$ → $\frac{\Delta TVU}{\Delta MNL}$

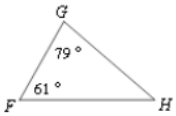
÷12 ÷8 ÷7

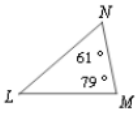
$\frac{3}{5} = \frac{3}{5} = \frac{3}{5}$ ✓

Similar: (Yes) or No If yes by which theorem or postulate: SSS Scale Factor: $\frac{3}{5}$

Similarity Statement: $\Delta TVU \sim \Delta MNL$

4.





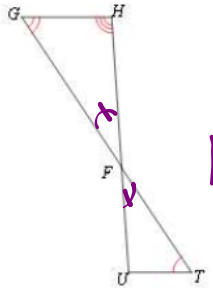
$\measuredangle G \cong \measuredangle M$ (BOTH 79°)

$\measuredangle F \cong \measuredangle N$ (BOTH 61°)

Similar: (Yes) or No If yes by which theorem or postulate: AA Scale Factor: NOT POSSIBLE TO CALCULATE! (NO SIDE LENGTHS GIVEN)

Similarity Statement: $\Delta GFH \sim \Delta MNL$

5.



$\measuredangle GFH \cong \measuredangle TFU$ (VERTICAL $\measuredangle$S)

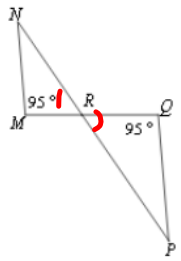
NO OTHER $\cong$ PAIRS!

Similar: Yes or (No) If yes by which theorem or postulate: N/A Scale Factor: N/A

Similarity Statement: N/A

6.

∠M ≅ ∠Q (BOTH 95°)
∠NRM ≅ ∠PRQ



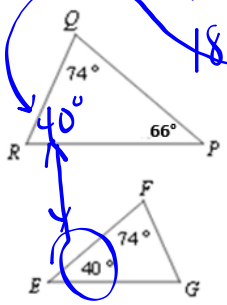
Similar: Yes or No If yes by which theorem or postulate: AA Scale Factor: N/P

Similarity Statement: ΔNRM ~ ΔPRQ

7.

74 + 66 = 140
180 − 140 = 40

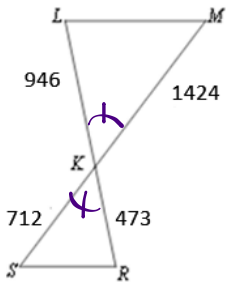
∠Q ≅ ∠F
∠R ≅ ∠E



Similar: Yes or No If yes by which theorem or postulate: AA Scale Factor: N/P

Similarity Statement: ΔQRP ~ ΔFEG

8.



∠LKM ≅ ∠RKS

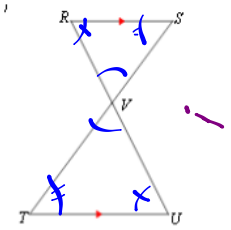
$\frac{946}{473} \stackrel{?}{=} \frac{1424}{712} \rightarrow \frac{2}{1} = \frac{2}{1}$ ✓

SHORT LONG

Similar: Yes or No If yes by which theorem or postulate: SAS Scale Factor: $\frac{2}{1}$

Similarity Statement: ΔLKM ~ ΔRKS

9.

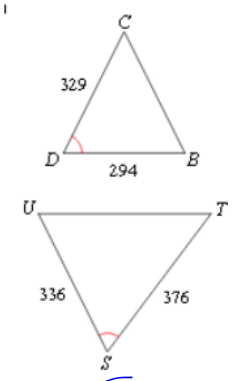


∠RVS ≅ ∠UVT (VERTICAL ∠S)
∠R ≅ ∠U (ALT. INT. ∠S)
∠S ≅ ∠T (ALT. INT. ∠S)

Similar: Yes or No If yes by which theorem or postulate: AA Scale Factor: N/P

Similarity Statement: ΔRVS ~ ΔUVT

10.



∠D ≅ ∠S

$\frac{329}{376} \stackrel{?}{=} \frac{294}{336}$

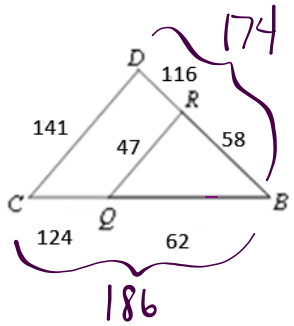
$\frac{7}{8} = \frac{7}{8}$ ✓

Similar: Yes or No If yes by which theorem or postulate: SAS Scale Factor: $\frac{7}{8}$

Similarity Statement: ΔCDB ~ ΔTSU

COULD ALSO USE SAS
∠RBQ ≅ ∠DBC

11.



174
186

$\frac{47}{141} \stackrel{?}{=} \frac{58}{174} \stackrel{?}{=} \frac{62}{186}$

$\frac{1}{3} \quad \frac{1}{3} \quad \frac{1}{3}$ ✓

Similar: Yes or No If yes by which theorem or postulate: SSS Scale Factor: $\frac{1}{3}$

Similarity Statement: ΔDBC ~ ΔRBQ