Similarity Postulates
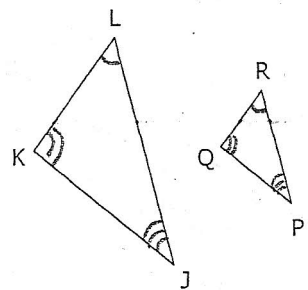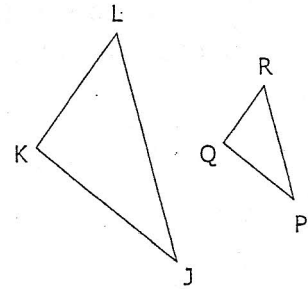
In __similar__ triangles, the angles are _Congruent_ and the sides are _proportional_.
Similar figures can be created by _a dilation, possibly composed with rigid transformations_.

SSS Similarity	All 3 sets of corresponding sides are proportional.	$\frac{14}{7} = \frac{20}{10} = \frac{16}{8}$ $\triangle JKL \sim \triangle PQR$
SAS Similarity	Two sets of corresponding sides are proportional, and the included angles are congruent.	$\triangle JKL \sim \triangle PQR$
AAA Similarity	All 3 pairs of corresponding angles are congruent.	$\triangle JKL \sim \triangle PQR$
AA Similarity (same as AAA)	Two pairs of corresponding angles are congruent (the third pair must also be congruent because all triangles have an angle sum of 180°)	$\triangle JKL \sim \triangle PQR$

Determine whether there is enough information to conclude the two triangles are similar.
If so, explain how you know and fill in the blanks. If not, explain why not.

1.

$\frac{65}{42}$ $\frac{180}{-107}$
$\frac{}{107}$ 73
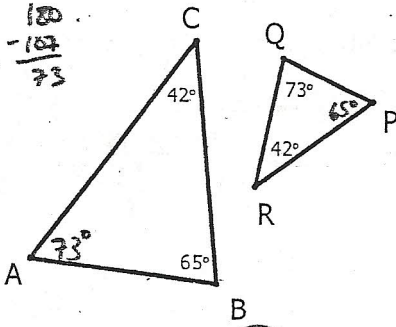
Enough info? (yes) no

If yes: $\triangle ABC \sim \underline{\triangle QPR}$

by $\underline{AA \ (or \ AAA)}$

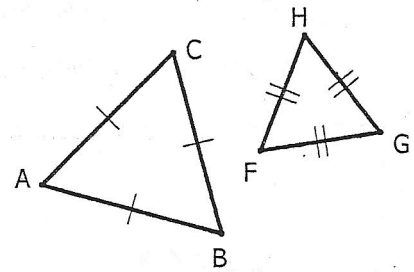If no: Why not?

_____

2.
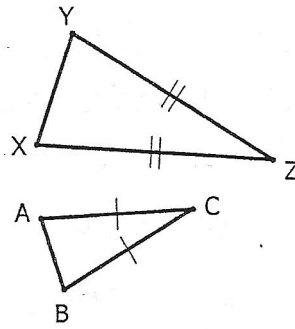
Enough info? yes (no)

If yes: $\triangle ABC \sim$ _____

by _____

If no: Why not?

need other side or
at least one angle

3.

Enough info? (yes) no

If yes: $\triangle ABC \sim \underline{\triangle FGH}$

by $\underline{SSS}$

If no: Why not?

_____

Determine whether there is enough information to conclude the two polygons are similar.
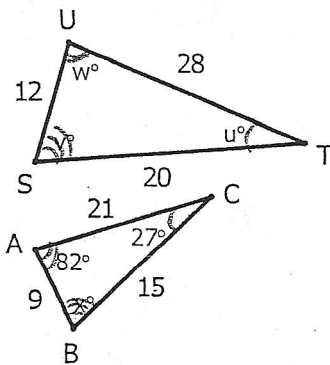If so, find the value of each variable.

$\frac{1}{53}$
$\frac{37}{90}$

4.

$\frac{12}{9} = \frac{28}{21}$

$\frac{4}{3} = \frac{4}{3}$

$\frac{12}{9} = \frac{20}{15}$

$\frac{4}{3} = \frac{4}{3}$

$\frac{82}{27}$
$\frac{}{109}$

$\frac{180}{-109}$
$\frac{}{71}$

Enough info? (yes) $^{(SSS)}$ no

If yes, find the value
of each variable.

$x = 71°$

$w = 82°$

$v = 71°$

$u = 27°$

5.

$\frac{5}{20} = \frac{6}{24}$

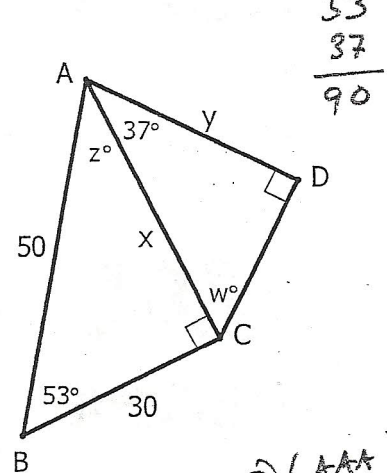$\frac{1}{4} = \frac{1}{4}$

$\frac{1}{4} = \frac{x}{28}$

$x = 7$
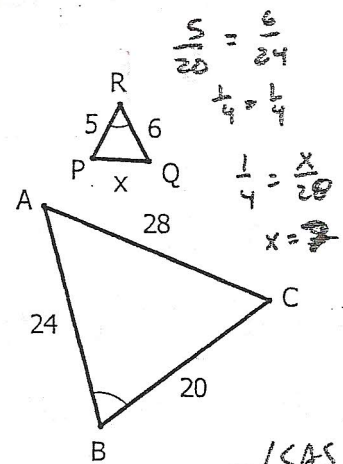
Enough info? (yes) $^{(SAS)}$ no

If yes, find the value
of each variable.

$\boxed{x = 7}$

6.

Enough info? (yes) $^{(AAA)}$ no

If yes, find the value
of each variable.

$w = 53°$ $x = 40$

$z = 37°$ $y = \frac{160}{5} = 32$

$\frac{50}{40} = \frac{40}{y}$

$\frac{5}{4} = \frac{40}{y}$

$5y = 160$

$\frac{}{}$