NOTES 8.1: SIMILAR POLYGONS

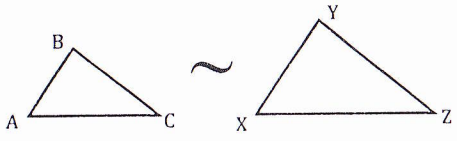
Objective: _____

_____

If two polygons are similar, two things are true:

1) All corresponding ∠s are ≅.
2) Corresponding sides are proportionate.

EXAMPLE 1: Use the figures below to answer the questions that follow.

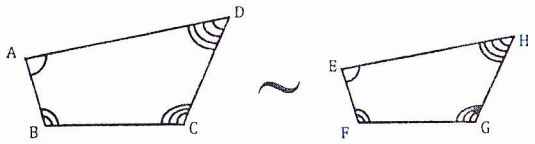


$\angle A \cong$ ∠X $\overline{AB}$: $\overline{XY}$

$\angle B \cong$ ∠Y $\overline{BC}$: $\overline{YZ}$

$\angle C \cong$ ∠Z $\overline{AC}$: $\overline{XZ}$

EXAMPLE 2: If the quadrilaterals below are similar, then what must be true?



About the angles:

About the sides:

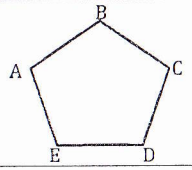
An angle is said to be ***INCLUDED*** between two sides, and a side is said to be ***INCLUDED*** between two angles.

EXAMPLE 3: Use the polygon below to answer the questions that follow.

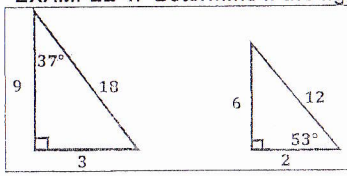
a) Which angle is included between $\overline{AB}$ and $\overline{BC}$? ∠B

b) Which side is included between ∠E and ∠D? $\overline{ED}$

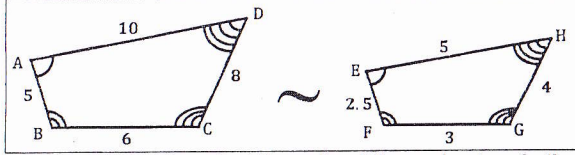
c) Which angle is included between $\overline{AE}$ and $\overline{AB}$? ∠A



EXAMPLE 4: Determine if the figures are similar. Justify your answer.



EXAMPLE 5: What is the scale factor of quadrilateral ABCD to quadrilateral EFGH?



EXAMPLE 6: Show that the ratio of the perimeters is the same as the scale factor.

EXAMPLE 7:

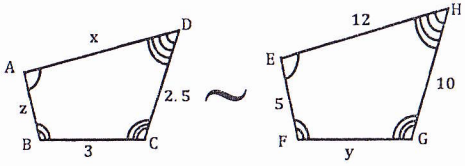
a) Quad EFGH ~ Quad _____

b) Find the following:

- x = _____
- y = _____
- z = _____

c) What is their scale factor? _____

d) What is the ratio of their perimeters? _____



EXAMPLE 8: Complete the following.

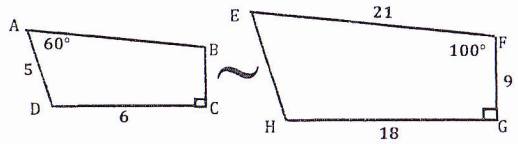
m∠E = _____ EH = _____

m∠G = _____ BC = _____

m∠B = _____ AB = _____

m∠H = _____

What is the scale factor of Quad ABCD to Quad EFGH? _____



EXAMPLE 9: If the lengths of the sides of a triangle are in the ratio 3: 5: 7 and its perimeter is 120 cm, find the length of the shortest side of the triangle.

EXAMPLE 10: The measures of the angles of a triangle are in the ratios 1: 2: 3. Find the measure of the largest angle.