NOTES 8.1: SIMILAR POLYGONS

Objective:_____

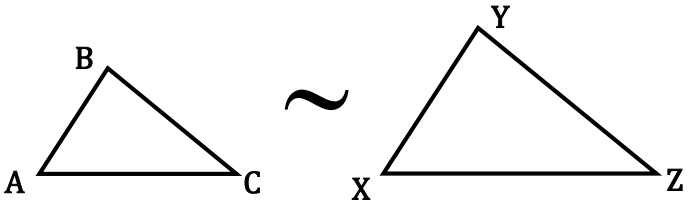
_____

If two polygons are similar, two things are true:

1)

2)

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

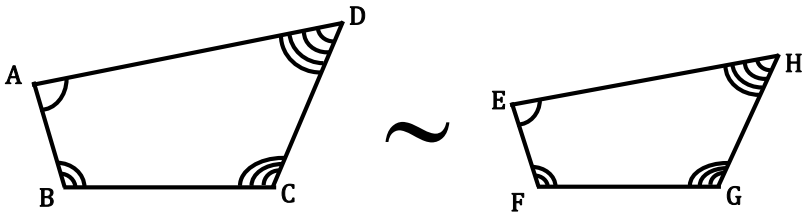


$\angle A \cong$ _____ $\overline{AB}$: _____

$\angle B \cong$ _____ $\overline{BC}$: _____

$\angle C \cong$ _____ $\overline{AC}$: _____

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



About the angles:

About the sides:

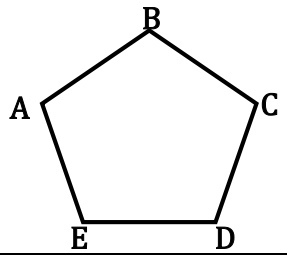
An angle is said to be ***INCLUDED*** between two sides, and a side is said to be ***INCLUDED*** between two angles.

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

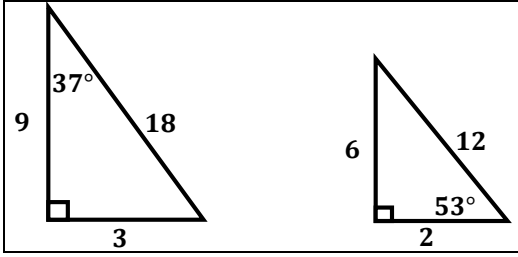
a) Which angle is included between $\overline{AB}$ and $\overline{BC}$?_____

b) Which side is included between $\angle E$ and $\angle D$?_____

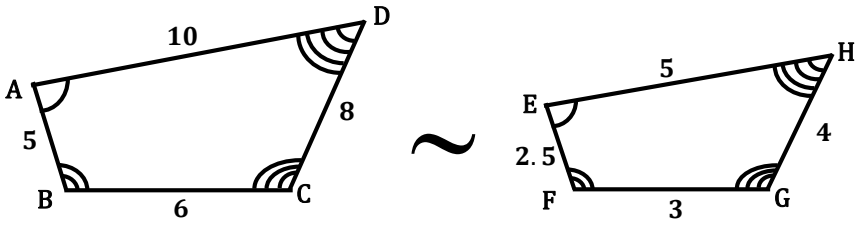
c) Which angle is included between $\overline{AE}$ and $\overline{AB}$?_____



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



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



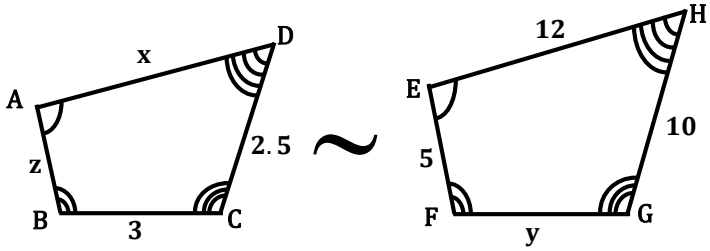
EXAMPLE 6: Show that the ratio of the perimeters is the same as the scale factor.

EXAMPLE 7:

a) Quad $EFGH \sim$ Quad _____

b) Find the following:

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



c) What is their scale factor?_____

d) What is the ratio of their perimeters?_____

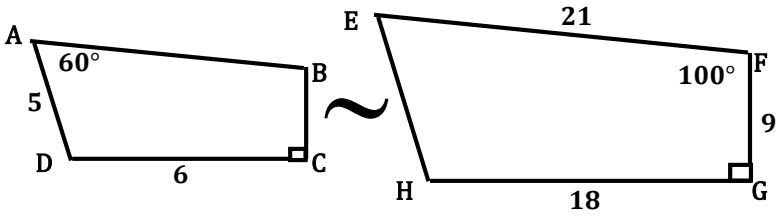
EXAMPLE 8: Complete the following.

$m\angle E =$ _____ $EH =$ _____

$m\angle G =$ _____ $BC =$ _____

$m\angle B =$ _____ $AB =$ _____

$m\angle H =$ _____



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.