TOPIC 8-3: MORE SIMILAR POLYGONS

SIMILAR POLYGONS:

If two polygons are similar, what must be true?
1) _________________________________________________________
2) _________________________________________________________

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

a) What must be true about the angles?  
b) What must be true about the sides?

SCALE FACTOR:

EXAMPLE 2  What is the scale factor of quadrilateral ABCD to quadrilateral EFGH above?

EXAMPLE 3  Show that the ratio of the perimeters is the same as the scale factor.

EXAMPLE 4  What is the scale factor of quadrilateral EFGH to quadrilateral ABCD in EXAMPLE 1?
EXAMPLE 5  Determine if the figures are similar. Justify your answer.

EXAMPLE 6  Use the similar figures below to answer the questions that follow.

a) Quad EFGH ~ Quad __________________.

b) What is their scale factor?__________

c) Find the following:
   ➢ x = __________
   ➢ y = __________
   ➢ z = __________

d) What is the ratio of their perimeters?__________

e) How do b) and d) compare?__________________________
EXAMPLE 7 Use the similar figures below to answer the questions that follow.

![Similar Figures Diagram]

a) Find the scale factor of polygon RSTUV to polygon ABCDE:___________

b) Find the values of:
   
   \[x = \underline{_________}\]
   
   \[y = \underline{_________}\]

EXAMPLE 8 Quad ABCD \(\sim\) Quad EFGH below. Answer the following questions.

![Similar Quadrilaterals Diagram]

a) Complete the following:
   
   \[m \angle E = \underline{_________}\]
   
   \[m \angle G = \underline{_________}\]
   
   \[m \angle B = \underline{_________}\]
   
   \[m \angle H = \underline{_________}\]

b) What is the scale factor of Quad ABCD to Quad EFGH?___________

c) Find the following:
   
   \[EH = \underline{_________}\]
   
   \[BC = \underline{_________}\]
   
   \[AB = \underline{_________}\]
EXAMPLE 9  The lengths of the sides of a triangle are in the ratio 3:5:7. 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.