Jan. 5th, 2021

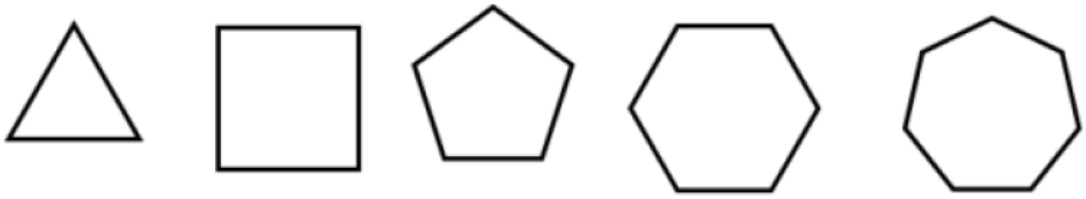
Mini Lesson #1 (TASK 2 & 3)

Math 9A notes Mini lesson #1: Sec 7.3 Similar Polygons Name: _____

Period: ___ Date: _____

Section 7.3 Similar Polygons

Polygon is a closed shape with straight sides. Exactly 2 sides meet at a vertex.
Regular Polygon has equal sides and equal angles.

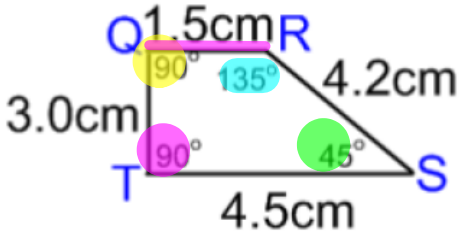


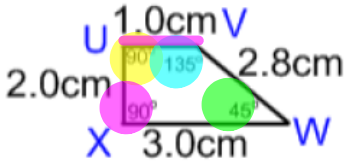
When one polygon is an enlargement or reduction of another polygon, we say the polygons are similar.

When 2 polygons are similar:

- Matching angles are equal AND
- Matching sides are proportional.

Example #1: Are these polygons similar?





Check matching angles:

$\angle Q = \angle U = 90^0$
$\angle R = \angle V = 135^0$

$\angle S = \angle W = 45^0$
$\angle T = \angle X = 90^0$

Check matching sides: enlargement original

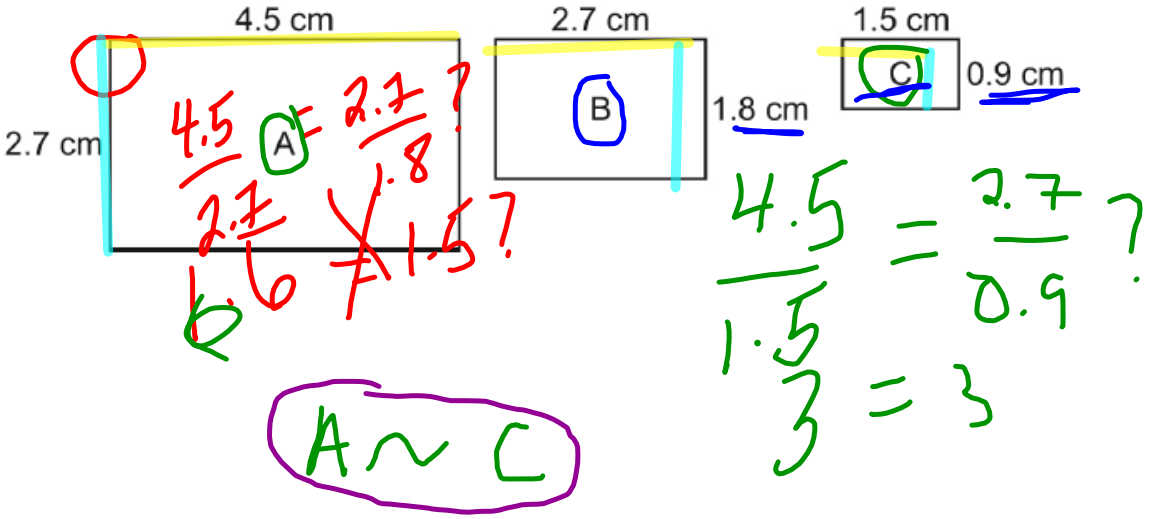
$$\frac{QR}{UV} = \frac{1.5cm}{1.0cm} = 1.5 \qquad \frac{ST}{WX} = \frac{4.5cm}{3.0cm} = 1.5$$

$$\frac{RS}{VW} = \frac{4.2cm}{2.8cm} = 1.5 \qquad \frac{TQ}{XU} = \frac{3.0cm}{2.0cm} = 1.5$$

Polygon QRST ~ polygon UVWX

You Try:

Which rectangles are similar? Give reasons for your answer.



$\frac{4.5}{2.7} \stackrel{?}{=} \frac{2.7}{1.8}$

$1.6 \neq 1.5$

$\frac{4.5}{1.5} \stackrel{?}{=} \frac{2.7}{0.9}$

$3 = 3$

$A \sim C$

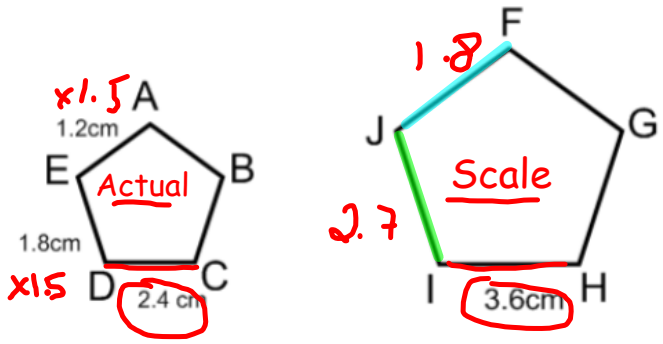
Rectangle A $\sim$ Rectangle C

Similar

Figures are similar if corresponding angles are equal and corresponding sides are proportional!

Example 2: the following figures are similar.

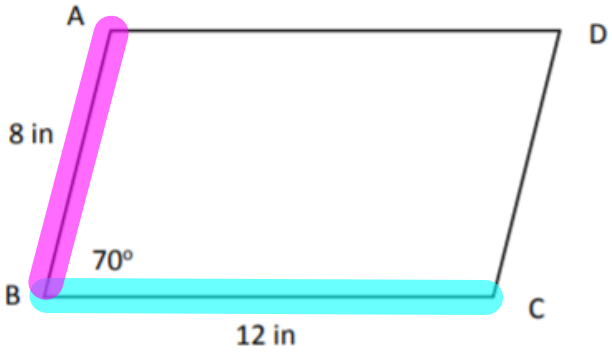
Determine the length of JI & JF

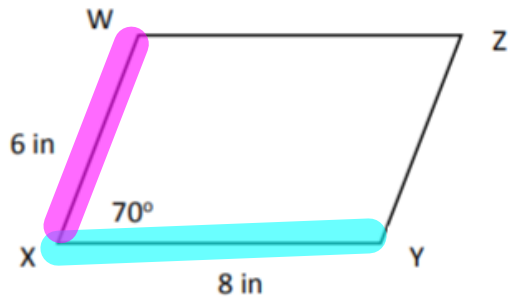


$SF = \frac{3.6}{2.4} = 1.5$

You try:

~~Example 3:~~ Determine if the two given parallelograms, ABCD and WXYZ, are similar.



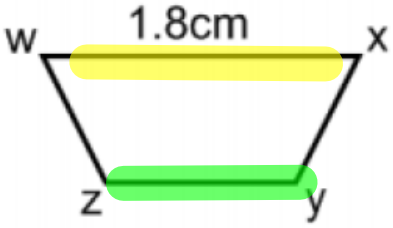


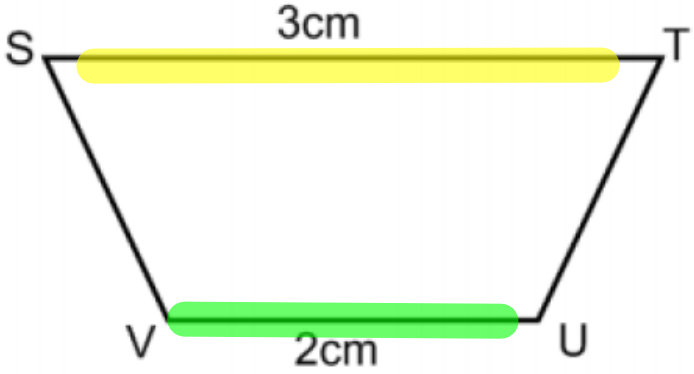
Scale : Actual

$\frac{12}{8} = \frac{8}{6}$?

Not similar

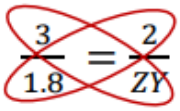
Example # 3: Cross Multiply Method. Find the length of ZY.





Answer:

$$\frac{ST}{WX} = \frac{VU}{ZY} \rightarrow \frac{3}{1.8} = \frac{2}{ZY}$$



$3(ZY) = 2 \times 1.8$

$\frac{3\,ZY}{3} = \frac{3.6}{3}$

$ZY = 1.2$ cm