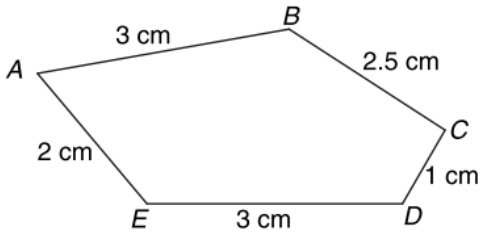
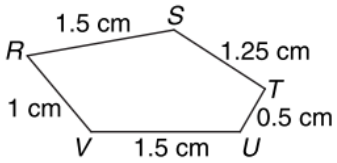
Determining Similarity with Side Lengths

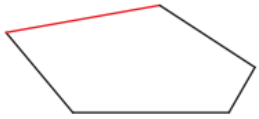
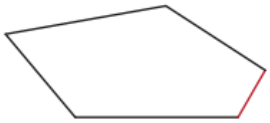
1. The corresponding angles in both polygons are congruent. Using corresponding side length ratios, determine if the polygons are similar.



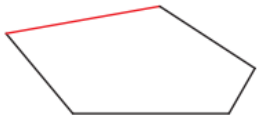
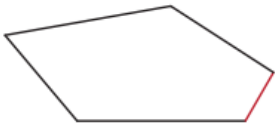


Solution:

Step 1: Identify all corresponding sides.

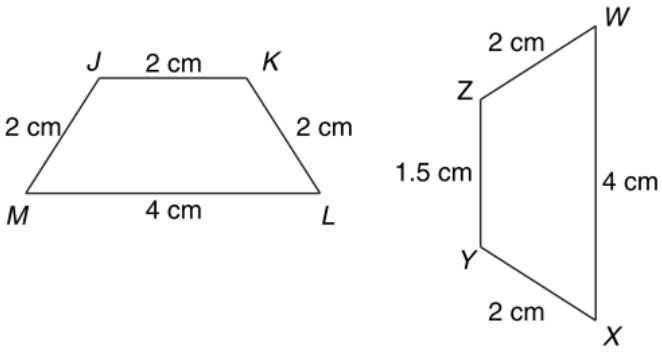
Relative Position	Polygon ABCDE	Corresponding side on Polygon RSTUV
	*AB*	*RS*
	*BC*	*ST*
	*CD*	*TU*
	*DE*	*UV*
	*EA*	*VR*

Step 2: Calculate each of the corresponding side length ratios, and compare.

Relative Position	**Polygon ABCDE** / **Polygon RSTUV**	Corresponding side length ratio
	$\frac{AB}{RS}=\frac{3}{1.5}$	$=2$
	$\frac{BC}{ST}=\frac{2.5}{1.25}$	$=2$
	$\frac{CD}{TU}=\frac{1}{0.5}$	$=2$
	$\frac{DE}{UV}=\frac{3}{1.5}$	$=2$
	$\frac{EA}{VR}=\frac{2}{1}$	$=2$

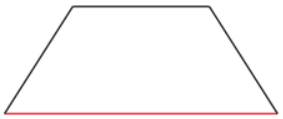
Because the ratios are the same for all the corresponding side lengths, the polygons are similar.

2. The corresponding angles in both polygons are congruent. Using corresponding side length ratios, determine if the polygons are similar.

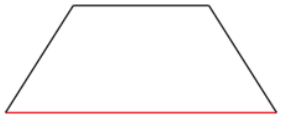


Solution:

Step 1: Identify all corresponding sides.

Relative Position	Polygon JKLM	Corresponding side on Polygon YZWX
	*JK*	*YZ*
	*KL*	*ZW*
	*LM*	*WX*
	*MJ*	*XY*

Step 2: Calculate each of the corresponding side length ratios, and compare.

Relative Position	**Polygon JKLM / Polygon YZWX**	Corresponding side length ratio
	$\frac{JK}{YZ} = \frac{2}{1.5}$	$= 1.\overline{3}$
	$\frac{KL}{ZW} = \frac{2}{2}$	$= 1$
	$\frac{LM}{WX} = \frac{4}{4}$	$= 1$
	$\frac{MJ}{XY} = \frac{2}{2}$	$= 1$

*Because the ratios are **not** all the same for the corresponding side lengths, the polygons are **not** similar.*