**6.3 Similar Polygons (p. 156)**

**Similar polygons** – polygons (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) that are enlargements or reductions of each other.



* Have the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



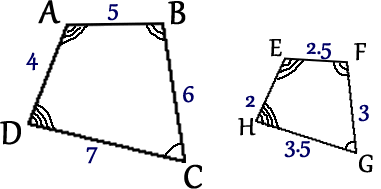
* All corresponding \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

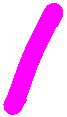


* All ratios of corresponding \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (meaning they have the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)



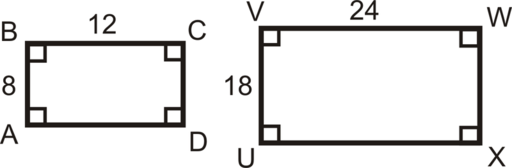
Example 1:

[](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwiX7Z2fueHTAhVGVWMKHa23BxQQjRwIBw&url=http://www.emathematics.net/similarity.php&psig=AFQjCNGur8bGoLKeGK0fBAQEGoDdYFqYfA&ust=1494372403024950)



These quadrilaterals (4-sided polygons) are similar because:



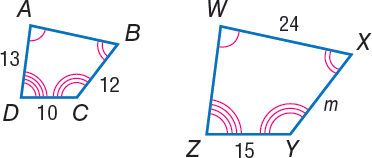
[](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwiaqcmjuuHTAhVK62MKHTm6DJYQjRwIBw&url=http://www.freelearningchannel.com/l/Content/Materials/Mathematics/Geometry/textbooks/CK12_Geometry/html/7/2.html&psig=AFQjCNGur8bGoLKeGK0fBAQEGoDdYFqYfA&ust=1494372403024950)Example 2: Find the length of AB. **Two methods**:

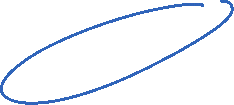


1. **By inspection**



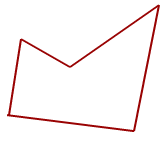
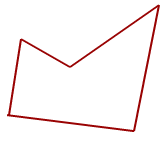
Example 3: Find *m.*  **2. By cross-multiplying**

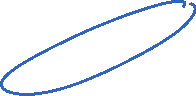
[](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwjciJPZueHTAhVG8mMKHSG-A9kQjRwIBw&url=http://www.emathematics.net/similarity.php&psig=AFQjCNGur8bGoLKeGK0fBAQEGoDdYFqYfA&ust=1494372403024950)



Example 4: Find *x*.



[](http://www.google.ca/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwjIvpSbvOHTAhUYzGMKHcS0D-YQjRwIBw&url=http://www.tutorvista.com/content/math/pentagon/&psig=AFQjCNEEujsOgwr_Q-5-k042qdl4IKpI6Q&ust=1494373196880111)



*x* mm

3 mm

5.4 mm

8.1 mm