

B3.3: Similar Triangles and Perimeter and Area

Use dynamic geometry software for the following two investigations.

Investigation 1

Construct a triangle. Measure the sides and calculate the perimeter. Record your data. Construct another triangle similar to the first one using dilation with a different scale. Measure and record its side lengths and perimeter. Find the ratios indicated in the chart. Repeat for other pairs of triangles. Put each pair of triangles in a separate sketch and keep them for Investigation 2 below.

	First Triangle				Dilated Triangle			
	AB	BC	AC	Perimeter	A'B'	B'C'	A'C'	Perimeter
Acute								
Obtuse								
Isosceles								
Right								

	AB : A'B'	BC : B'C'	AC : A'C'	Perimeter ΔABC : Perimeter $\Delta A'B'C'$
Acute				
Obtuse				
Isosceles				
Right				

Now make a conjecture about the ratio of the two perimeters and the ratio of their corresponding side lengths. Drag your triangle figures after you take measurements if you need additional data.

Investigation 2

Do the same steps as above but this time we will be recording the area of the associated triangles.

	First Triangle				Dilated Triangle			
	AB	BC	AC	Area	A'B'	B'C'	A'C'	Area
Acute								
Obtuse								
Isosceles								
Right								

	AB : A'B'	BC : B'C'	AC : A'C'	Area of $\triangle ABC$: Area of $\triangle A'B'C'$
Acute				
Obtuse				
Isosceles				
Right				

Make a conjecture about the ratio of the areas of the two triangles and the ratio of their corresponding side lengths.