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10.x Geometry

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Overlapping Similar Triangles: A Reflection and Dilation

A common configuration for two similar triangles is to share a common vertex but be mirror images of each other. Such a situation was constructed in Geogebra by reflecting triangle *ABC* across the angle bisector of angle *A* and then dilating the resulting triangle by a scale factor of 1.5, yielding triangle *A”B”C”*, shown below in Figure 1.

A close up of a map

Description automatically generated

Figure 1: Two overlapping similar triangles showing the lengths of corresponding sides

Corresponding angles are congruent, , and , by the reflexive property, so the two triangles are similar by *AA* Similarity, . The scale factor can be calculated from the ratios of the corresponding sides: , .