8.G.A.3 Effects of Dilations on Length, Area, and Angles

Task

Consider triangle $ABC$.

a. Draw a dilation of $ABC$ with:
   i. Center $A$ and scale factor 2.
   ii. Center $B$ and scale factor 3.
   iii. Center $C$ and scale factor $\frac{1}{2}$. 
b. For each dilation, answer the following questions:

i. By what factor do the base and height of the triangle change? Explain.

ii. By what factor does the area of the triangle change? Explain.

iii. How do the angles of the scaled triangle compare to the original? Explain.