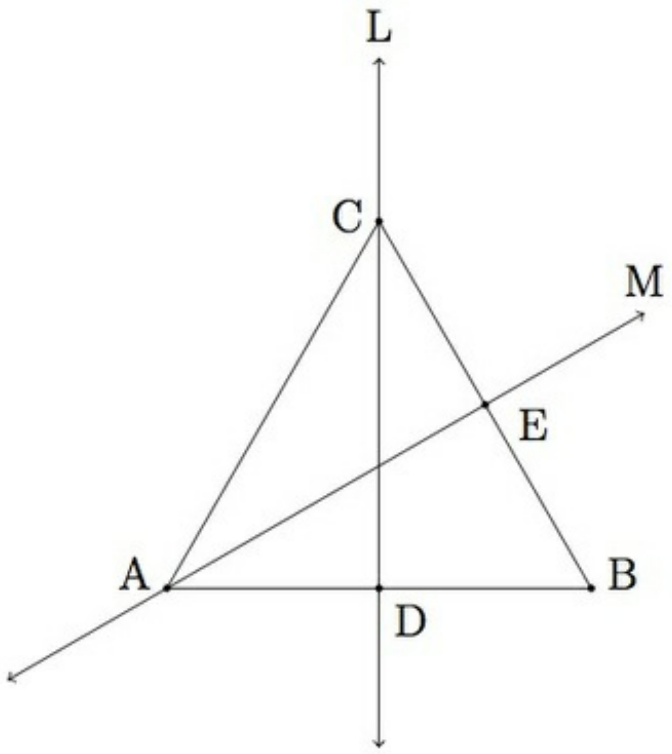
G.CO Reflections and Equilateral Triangles II

Task

Suppose ABC is an equilateral triangle. Let D be the midpoint of side $\overline{AB}$ and E the midpoint of side $\overline{BC}$ as pictured below:



The line through C and D is denoted L and the line through E and A is denoted M. Let r_L denote the reflection of the plane about the line L and r_M reflection of the plane about the line M.

a. Where do the reflections r_L and r_M map the vertices A, B, and C of triangle ABC? Explain.

b. Where do the vertices A, B, and C end up if the plane is first reflected about line M and then about L?

c. Where do the vertices A, B, and C end up if the plane is first reflected about line L and then about M? Is the answer the same as (b) or different?