

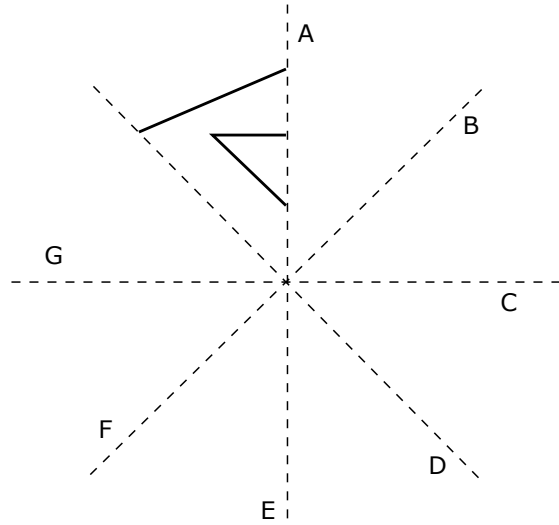


Problem of the Week Problem B and Solution Reflecting on Your Design

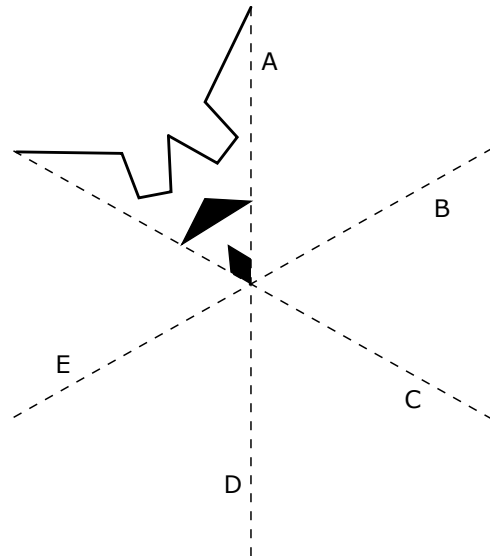
Problem

In parts a) and b), we are going to be performing a number of reflections. When you are finished all the reflections, you should have an overall pattern that is pleasing to the eye.

- a) The solid lines on the right show the start of a pattern. The dotted lines represent mirrors that will reflect an image. First, reflect the solid lines across mirror A to create new solid lines between mirrors A and B. Then reflect the new solid lines across mirror B to create new solid lines between mirrors B and C. Continue in this way to finish the design, and reflect the new lines of the pattern across mirrors C, D, E, F, and then G.



- b) The start of a second pattern is shown on the right. The dotted lines represent mirrors that will reflect an image. First, reflect the pattern across mirror A to create a new pattern between mirrors A and B. Then reflect the new pattern across mirror B to create a new pattern between mirrors B and C. Continue in this way to finish the design, and reflect the new pattern across mirrors C, D and then E.



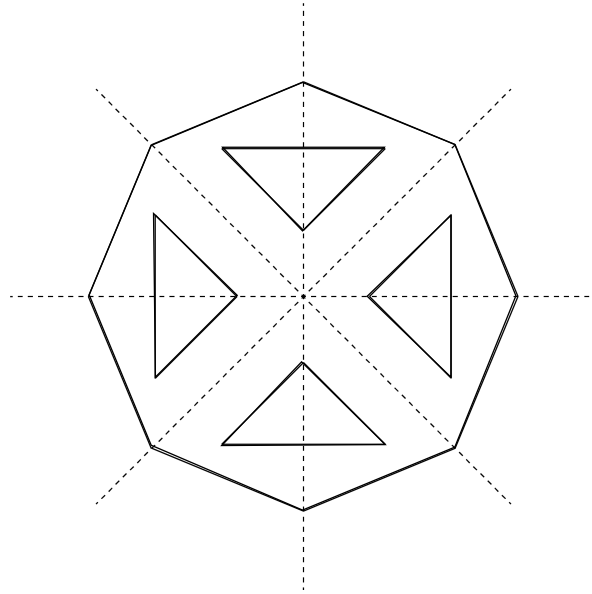
- c) Describe to a classmate the process you used to complete your design accurately.

Solution

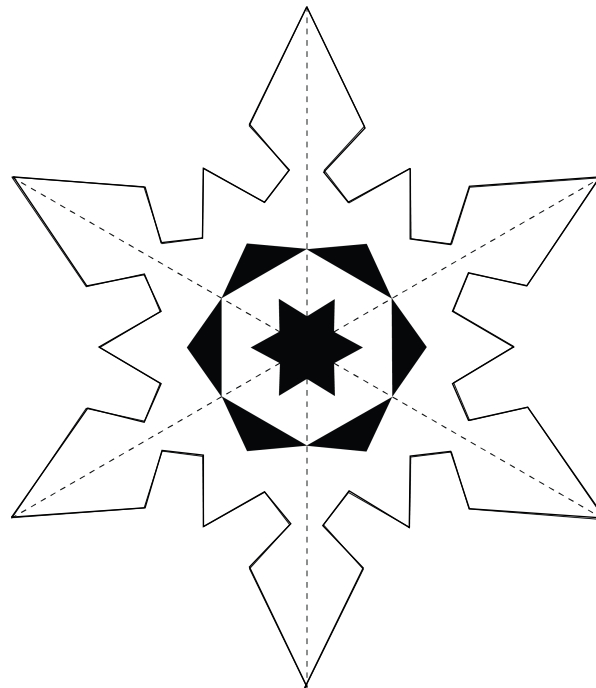
The completed diagrams are shown on the next page.



a)



b)



c) Here are some strategies you might have used.

- Use a MIRA or some other optical drawing instrument to ‘reflect’ across the dotted lines.
- Fold the paper along the dotted line, trace the solid lines onto the back of the next section, and then open the paper up and trace the solid lines through the paper so they are on the front.
- Mark key points on the pattern, such as the vertices of any closed shape or where a line changes direction. Then measure the horizontal or vertical distance from each key point to the dotted line. Use these distances to draw the key points in the next section, and then complete the pattern using the key points.