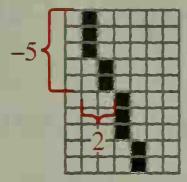
To understand condition (2), look at the line shown in the first example on page 708. The basic pattern is: move down 3 pixels, shift diagonally to the right, move down 2 pixels, shift diagonally to the right. The notation *3d, r, 2d, r* designates this pattern, which is used repeatedly to form the line.



In moving from the first pixel in one copy of the pattern to the first pixel of the next copy of the pattern, you move down a total of 5 pixels and to the right a total of 2 pixels. In other words, the "line" has "slope" $-\frac{5}{2}$.

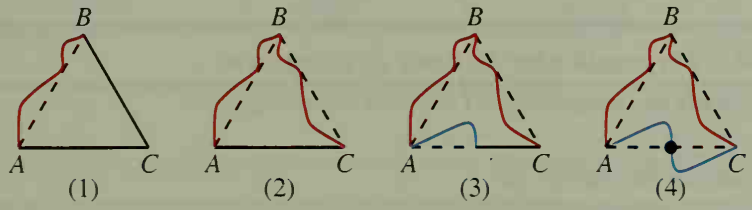
1. To understand condition (3), note that in the pattern for the line with slope $-\frac{5}{2}$ shown above, the lengths of the two vertical runs of pixels differ by one pixel. Draw the line produced by the pattern *4d, r, 1d, r* and confirm that it also has slope $-\frac{5}{2}$. By how much do the lengths of the two vertical runs of pixels differ for this pattern? Which pattern gives a smoother line with slope $-\frac{5}{2}$?
2. Draw a line with the pattern *2r, u, 1r, u*, where *r* indicates a move to the right and *u* indicates a diagonal shift up. What is the slope of this line?
3. Draw the smoothest line with the given slope, and state the pattern you used.

   a. 1 **b.** −2 **c.** $-\frac{3}{5}$ **d.** $\frac{7}{4}$ **e.** $\frac{5}{8}$

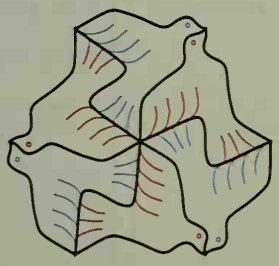
Creating a Tessellating Figure (Chapter 14)

Materials: Posterboard, ruler, protractor, compass, scissors

To create a figure that tessellates, such as the fish on page 610, you can modify any polygon that tessellates. Here is an example.



(1) Draw equilateral $\triangle ABC$, and then alter the shape of side $\overline{AB}$.
(2) Rotate the curve *AB* about point *B* through 60°, creating a curve *BC* that will interlock with the curve *AB*.
(3) Alter the left half of $\overline{AC}$.
(4) Rotate the shape drawn in step (3) through 180° about the midpoint of $\overline{AC}$. The curve *AC* will interlock with itself.
(5) Cut out the shape and trace copies of it to make a tessellation. The shape looks like a bird, so add an eye and feathers!


(5)

Experiment with the process demonstrated above. Use other shapes and transformations. Develop one tessellation into an art piece.