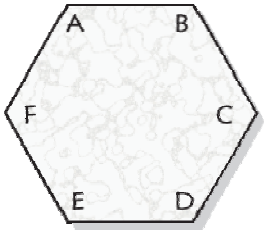
Lesson 8-4

Problem

PAPER FOLDING How can a regular hexagon, such a hexagon *ABCDE* be folded, creased, and then unfolded to form each of these?



a. two congruent isosceles trapezoids
In an isosceles trapezoid, the two nonparallel sides are of equal length.

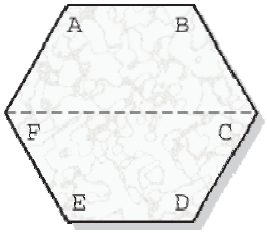
b. two congruent pentagons, each of which have two pairs of sides that are of equal length

Solve the Problem

If you cannot solve this problem mentally, act it out. Trace the hexagon on a sheet of paper and cut it out. Experiment with different folds to get the answers. .

a. Draw a diagonal that connects any two opposite vertices, which for this hexagon would be *A* and *D*, *B* and *E*, or *C* and *F*. Fold the hexagon along this diagonal and crease. If the hexagon is folded along $\overline{FC}$, then *A* will coincide with *E*, and *B* will coincide with *D*.

When the figure is unfolded, you will have two congruent isosceles trapezoids, *FABC* and *FEDC*.



b. Fold the hexagon along the segment that connects the midpoints of two opposite sides. One way to do this is to fold it so that *A* will coincide with *B*, *F* will coincide with *C*, and *E* will coincide with *D*.

When the figure is unfolded, you will have two congruent pentagons, each of which has two pairs of sides of equal length.