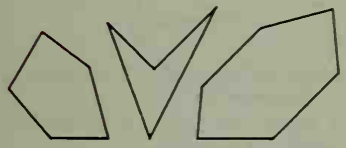
3-5 *Angles of a Polygon*

The word **polygon** means "many angles." Look at the figures at the left below and note that each polygon is formed by coplanar segments (called *sides*) such that:

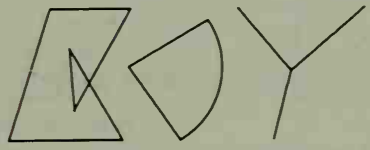
(1) Each segment intersects exactly two other segments, one at each endpoint.

(2) No two segments with a common endpoint are collinear.

Polygons

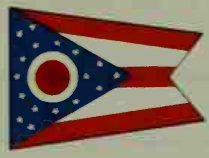


Not Polygons



Can you explain why each of the figures at the right above is *not* a polygon?

A **convex polygon** is a polygon such that no line containing a side of the polygon contains a point in the interior of the polygon. The outline of the state flag of Arizona, shown at the left below, is a convex polygon. At the right below is the state flag of Ohio, whose outline is a nonconvex polygon.



When we refer to a polygon in this book we will mean a convex polygon.

Polygons are classified according to the number of sides they have. Listed below are some of the special names for polygons you will see in this book.

Number of Sides	*Name*
3	triangle
4	quadrilateral
5	pentagon
6	hexagon
8	octagon
10	decagon
n	*n*-gon

A triangle is the simplest polygon. The terms that we applied to triangles (such as *vertex* and *exterior angle*) also apply to other polygons.