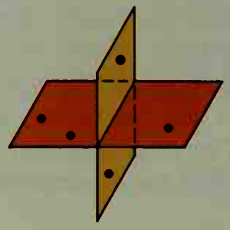
Space is the set of all points. **Collinear points** are points all in one line.

Collinear points

Noncollinear points

Coplanar points are points all in one plane.

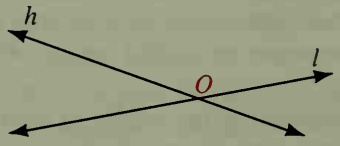
Coplanar points



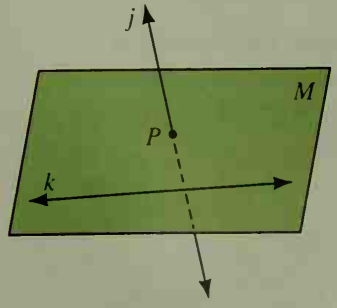
Noncoplanar points

Some expressions commonly used to describe relationships between points, lines, and planes follow. In these expressions, *intersects* means "meets" or "cuts." The **intersection** of two figures is the set of points that are in both figures. Dashes in the diagrams indicate parts hidden from view in figures in space.

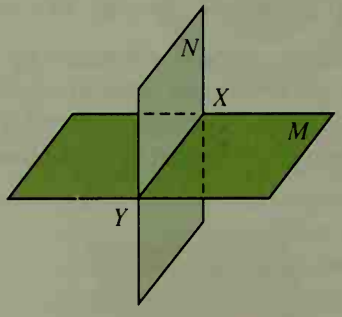
A is in l, or A is on l.
l contains A.
l passes through A.



l and h intersect in O.
l and h intersect at O.
O is the intersection of l and h.



k and P are in M.
M contains k and P.
j intersects M at P.
P is the intersection of j and M.



M and N intersect in $\overleftrightarrow{XY}$.
$\overleftrightarrow{XY}$ is the intersection of M and N.
$\overleftrightarrow{XY}$ is in M and N.
M and N contain $\overleftrightarrow{XY}$.

In this book, whenever we refer, for example, to "two points" or "three lines," we will mean *different* points or lines (or other geometric figures).