

## 1-2 Points, Lines, and Planes

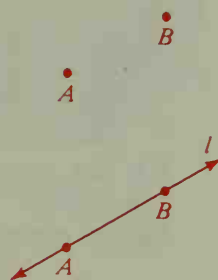
When you look at a color television picture, how many different colors do you see? Actually, the picture is made up of just three colors—red, green, and blue. Most color television screens are covered with more than 300,000 colored dots, as shown in the enlarged diagram below. Each dot glows when it is struck by an electron beam. Since the dots are so small, and so close together, your eye sees a whole image rather than individual dots.



Each dot on a television screen suggests the simplest figure studied in geometry—a *point*. Although a point doesn't have any size, it is often represented by a dot that does have some size. You usually name points by capital letters. Points  $A$  and  $B$  are pictured at the right.

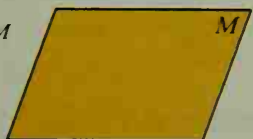
All geometric figures consist of points. One familiar geometric figure is a *line*, which extends in two directions without ending. Although a picture of a line has some thickness, the line itself has no thickness.

Often a line is referred to by a single lower-case letter, such as *line  $l$* . If you know that a line contains the points  $A$  and  $B$ , you can also call it *line  $AB$*  (denoted  $\overleftrightarrow{AB}$ ) or *line  $BA$*  ( $\overleftrightarrow{BA}$ ).



A geometric *plane* is suggested by a floor, wall, or table top. Unlike a table top, a plane extends without ending and has no thickness. Although a plane has no edges, we usually picture a plane by drawing a four-sided figure as shown below. We often label a plane with a capital letter.

Plane  $M$



Plane  $N$



In geometry, the terms *point*, *line*, and *plane* are accepted as intuitive ideas and are not defined. These *undefined terms* are then used in the definitions of other terms, such as those at the top of the next page.