Classroom Exercises

1. Theorem 1-1 states that two lines intersect in exactly one point. The diagram suggests what would happen if you tried to show two "lines" drawn through two points. State the postulate that makes this situation impossible.

2. State Postulate 6 using the phrase *one and only one*.

3. Reword the following statement as two statements, one describing existence and the other describing uniqueness:

    A segment has exactly one midpoint.

    Every segment has only one midpoint

Postulate 6 is sometimes stated as "Two points *determine* a line."

4. Restate Theorem 1-2 using the word *determine*.

5. Do two intersecting lines determine a plane?

6. Do three points determine a line?

7. Do three points determine a plane?

State a postulate, or part of a postulate, that justifies your answer to each exercise.

8. Name two points that determine line l.

9. Name three points that determine plane M.

10. Name the intersection of planes M and N.

11. Does $\overleftrightarrow{AD}$ lie in plane M?

12. Does plane N contain any points not on $\overleftrightarrow{AB}$?
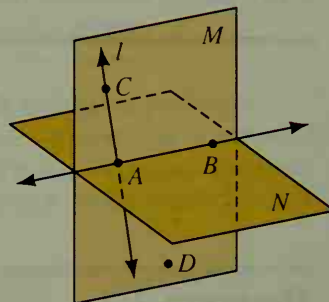
Surveyors and photographers use a *tripod* for support.

13. Why does a three-legged support work better than one with four legs? *bec 3 pts is only in one plane*

14. Explain why a four-legged table may rock even if the floor is level.

15. A carpenter checks to see if a board is warped by laying a straightedge across the board in several directions. State the postulate that is related to this procedure.

16. Think of the intersection of the ceiling and the front wall of your classroom as line l. Let the point in the center of the floor be point C.
    a. Is there a plane that contains line l and point C?
    b. State the theorem that applies.