Classroom Exercises

Exercises 1–4 refer to coplanar figures. Describe the possible intersections of the figures named.

1. A line and a circle
2. Two circles
3. Two parallel lines and a circle
4. Two perpendicular lines and a circle

5. Consider the following problem: In a plane, what is the locus of points that are equidistant from the sides of $\angle A$ and are equidistant from two points B and C?
   a. The locus of points equidistant from the sides of $\angle A$ is ___?___.
   b. The locus of points equidistant from B and C is ___?___.
   c. Draw diagrams to show three possibilities with regard to points that satisfy both conditions (a) and (b).
   d. Describe the locus.

Exercises 6–9 refer to figures in space. Describe the possible intersections of the figures named.

6. A line and a plane
7. A line and a sphere
8. Two spheres
9. A plane and a sphere

10. Let C be the point in the center of your classroom (*not* the center of the floor). Describe the locus of points in the room that satisfy the given conditions.
    a. 3 m from C
    b. 3 m from C and equidistant from the ceiling and the floor
    c. 3 m from C and 1 m from either the ceiling or the floor

Written Exercises

Exercises 1 and 2 refer to plane figures.

A 1. Draw a new $\odot O$ for each part. Then place two points A and B outside $\odot O$ so that the locus of points on $\odot O$ and equidistant from A and B is:
   a. 2 points
   b. 0 points
   c. 1 point

2. Draw two parallel lines m and n. Then place two points R and S so that the locus of points equidistant from m and n and also equidistant from R and S is:
   a. 1 point
   b. 1 line
   c. 0 points