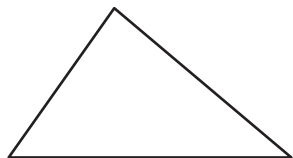NAME _____ DATE _____

Challenge: Skills and Applications

For use with pages 642–648

In Exercises 1–4, sketch and describe the locus points on the paper that satisfy the given condition(s).
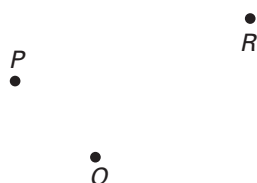
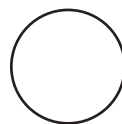**1.** The locus of points that are equidistant from the three sides of the triangle

2. The locus of points that are equidistant from the four vertices of the nonrectangular parallelogram

3. Given three vertices of a parallelogram, the locus of points that could be the fourth vertex

●
R

P
●

●
Q

4. The locus of points that are a distance of 5 mm from the circle (That is, the distance to the *nearest* point on the circle is 5 mm.)

5. Given two parallel planes in space, describe the locus of points that are equidistant from the two planes.

6. Given a line in space, describe the locus of points whose distance from the line is 3 inches.

7. Given a plane in space, describe the locus of points whose distance from the plane is 6 centimeters.

8. Given two points in space, describe the locus of points that are equidistant from the two points.

9. Let *C* be a point in space, and let *r* be a positive number. A *sphere* with center *C* and radius *r* can be described as the locus of points whose distance from *C* is *r*. If *S* is a sphere centered at the origin with radius 3, describe the locus of points whose distance from *S* is 4.

Lesson 10.7