NAME _____ DATE _____

Reteaching with Practice

For use with pages 642–648

GOAL **Draw the locus of points that satisfy a given condition and draw the locus of points that satisfy two or more conditions**

VOCABULARY

A **locus** in a plane is the set of all points in a plane that satisfy a given condition or set of given conditions.

Finding a Locus
To find the locus of points that satisfy a given condition, use the following steps.

1. Draw any figures that are given in the statement of the problem.

2. Locate several points that satisfy the given condition.

3. Continue drawing points until you can recognize the pattern.
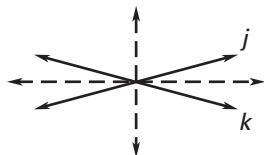
4. Draw the locus and describe it in words.

EXAMPLE 1 *Finding a Locus*

Sketch and describe the locus of points that satisfy the given condition(s)
a. in the interior of ∠*P* and equidistant from both sides of ∠*P*.
b. equidistant from *j* and *k*.
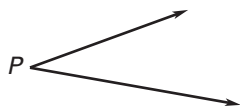
SOLUTION

a.
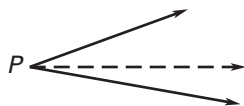
The points that make up the locus form the bisector of ∠*P*.

b.

The points that make up the locus form the four angle bisectors of the angles formed by the intersection of the two lines.

Lesson 10.7

NAME _____ DATE _____

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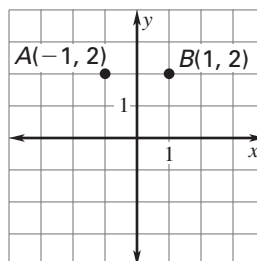
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Exercises for Example 1

Sketch and describe the locus of points that satisfy the given condition(s).

1. Equidistant from the lines $y = 3$ and $y = 7$

2. Within five units of the point $(-1, 2)$

3. Equidistant from $A(-1, 1)$ and $B(1, -1)$

EXAMPLE 2 *Drawing a Locus Satisfying Two Conditions*
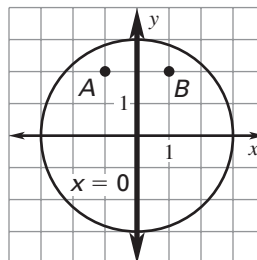
Sketch and describe the locus of points in the plane that are equidistant from A and B and less than 3 units from the origin.

SOLUTION

First, find the locus of points that are equidistant from A and B. This is the line $x = 0$.

Next, find the locus of points that are less than 3 units from the origin. This is the circle centered at the origin with radius of 3.

Now, find the overlap of these two loci. This is the line segment from point $(0, 3)$ to $(0, -3)$.

Exercises for Example 2

Sketch and describe the locus of points in the plane that satisfy the given conditions. Explain your reasoning.

4. Equidistant from A and B and 2 units from the point $(1, 1)$.

5. Equidistant from l and m and within four units from the origin.