

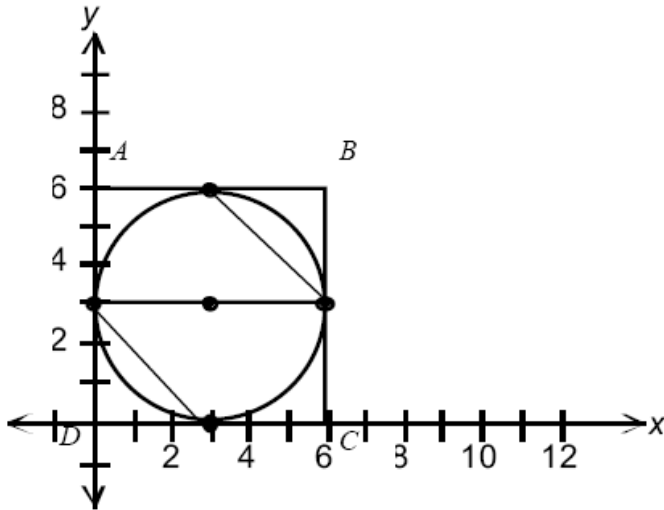
Indicators

Objective:

3.01 Identify and describe the intersection of figures in a plane.

Vocabulary and Resources		
vertex	interior angles	parallel
interior region	exterior angles	perpendicular
exterior region		

A. Give the coordinates of the intersection of the circle, the square and the indicated diameter. Give the coordinate of the point located on the indicated diameter, on the circle, on the square and in the first quadrant. What is the length of the diameter?



B. Determine all the possibilities for the intersection of a circle and a quadrilateral in a plane. What are the maximum number of points of intersection for these two figures?

C. Three different lines, l_1 , l_2 , and l_3 are located in a given plane. Sketch different possibilities for the intersection of these lines.

D. Two parallel lines are located 6" apart. A circle with a diameter of 2" is drawn. Give a diagram to illustrate each of the following:

- a) Two points of intersection
- b) One point of intersection
- c) No point of intersection

E. Two parallel lines are located 5" apart. A circle with a diameter of 8" is drawn. Give a diagram to illustrate each of the possibilities for the intersection of the two parallel lines with the circle.

F. Two pairs of parallel lines, l_1 and l_2 located 2 cm apart, and l_3 and l_4 located 5 cm apart, intersect in a plane. What are the possible figures determined by their intersection?

G. Graph triangle ABC with coordinates $(7, -2)$, $(-2, 2)$, $(-1, -3)$ and rectangle $RSTU$ with coordinates $(6, -1)$, $(6, 1)$, $(-4, 1)$, and $(-4, -1)$.

- a) Give the coordinates of points that satisfy each of the following conditions:
 - in the interior of both the triangle and the rectangle
 - in the interior of the rectangle only
 - in the interior of the triangle but in the exterior of the rectangle
 - in the interior of the rectangle but in the exterior of the triangle
- b) Shade the region in the first quadrant that is formed by the intersection of the two figures.