Math 29
PAL Worksheet 1

1. Find all the points having x-coordinate 3 whose distance from the point $(-1, 1)$ is $\sqrt{65}$.

2. Consider the circle whose equation is $(x - 3)^2 + (y - 5)^2 = 30$.

   a. Where (if anywhere) does the circle intersect the x-axis?

   b. Where (if anywhere) does the circle intersect the line $x = 7$?

   c. Does the point $(7, 1)$ lie inside the circle, outside the circle, or on the circle? Explain how you determine your answer.

3. A circle contains the points $(-6, -7)$ and $(2, 1)$ on opposite ends of a diagonal. Find the equation of the circle.

4. The graph of $(x - 3)^2 + (y - 4)^2 = 25$ intersects the x- and y-axes at the origin and at two other points. Find the distance between these other points.

5. The center of a circle is on the line $y = 2x$, and the points $(-2, 2)$ and $(4, -4)$ are on the circle. Find the equation of the circle.