Precalculus Honors
Systems of Equations Introduction
Chapter Seven

Generally I want you to work together on problems I pose. I want to switch that up a bit here and I want you to work on your own for the next few minutes.

1. Write an equation of a line whose graph passes through the point (3, 4). Make sure the line is neither horizontal or vertical. It is simply more interesting this way!
2. Write an equation of a circle whose graph passes through the point (3, 4).
3. Draw a quick sketch of the equations you wrote for problems 1 and 2. You can do this by hand or with the graphing utility of your choice.
4. How many points of intersection are there for your two sketches?
5. Using your Algebra skills, find the *exact coordinates* of these points of intersection.

You have been working on your own so far, let's put our heads together now, discuss this next question with your neighbor to see what you can deduce.

6. Now comes the challenge part. Write a system of equations that represent a circle whose graph passes through the point (3, 4) and a line (remember, we STILL don't want our line to be horizontal or vertical) whose graph passes through the point (3, 4) **where this is the ONLY point of intersection for these graphs.** It is certainly possible, but not very likely, that your equations already satisfy this condition, if so I ask that you make sure that the graph of your circle is entirely contained in the first quadrant.