

ASSIGNMENT 1.3 (Section 002) Due: Friday, September 20

There are two parts to this assignment. The first part is on WeBWorK — the link is available on the course webpage. The second part consists of the questions on this page. You are expected to provide full solutions (in full sentences) with complete arguments and justifications in a linear, coherent manner. You will be graded on the correctness, clarity and elegance of your solutions. Your answers must be typed or very neatly written. Your work must be your own and must be self-contained. Assignments must be stapled, with your name and student number at the top of each page. The assignment is due at the beginning of class on the due date.

1. There are exactly two circles of radius $\sqrt{5}$ through the points $(6, 3)$ and $(7, 2)$. Find the equations of both circles.
2. A function f has a *fixed point* at x_0 if $f(x_0) = x_0$. For example, the function $f(x) = \sqrt{x}$ has a fixed point at 1.
 - (a) Give an example of a function with two fixed points.
 - (b) Come up with a function that has exactly two fixed points at 1 and 3.
3. Consider two non-vertical perpendicular lines passing through the origin. That is, the lines meet at a right angle. Prove that the slopes of the two lines are negative reciprocals of each other. (For this problem you will be marked heavily on your communication of the solution.)