Math 3000, Homework assignment #9

1. Read Section 5.2 again.

2. Let $f : \mathbb{R} \to \mathbb{R}$ be given by $f(x) = 3x^2 + 2x + 4$. Show (using ONLY the definition of a continuous function, here AND in the next problems) that f is continuous at 3.

3. Let $g : [0, \infty) \to \mathbb{R}$ be given by $g(x) = \sqrt{x}$. Show that g is continuous at 4. (Hint: remember the old trick of multiplying by the conjugate expression!)

4. Let $h : \mathbb{R}\backslash\{0\}$ be given by $h(x) = \frac{1}{x}$.

   a) Show that h is continuous at $\frac{1}{2}$.

   b) Show that h is continuous at every $a \neq 0$. (Hint: choose $\delta < |a|/2$ to begin.)

5. (after Thursday's lecture): Section 5.2: 1a,2b,3,6abcdfg

6. Turn in all of the above.

7. Read Section 5.3 as preparation for next Tuesday.