The problems that follow illustrate the methods covered in class. They are typical of the types of problems that will be on the tests.

**Problem 1.** State the Mean Value Theorem. How is this theorem used in solving equations?

**Problem 2.** State the Intermediate Value Theorem. How is this theorem used in solving equations?

**Problem 3.** Give the Taylor Expansion of the function $f(x)$ centered at $x = a$. How is this expansion used in understanding the Newton Method?

**Problem 4.** State and prove the Fixed-Point Iteration Theorem. How is this theorem used in solving an equation of the form $f(x) = x$?