MAT 142
Problem Set #1

due in class on January 28, 2005

1. Apostol, section 5.5 # 3–9, 14, 16, 20
2. Let $f(x)$ be a continuous function. We proved in class that every indefinite integral of f is a primitive of f. Show that the converse is *not* true. Hint: Consider the function

$$f(x) = \begin{cases} \sin x & \text{if } 0 \leq x \leq \pi \\ 0 & \text{otherwise} \end{cases}$$

and construct a primitive of f which is not an indefinite integral.