Math 250a (Fall '07) - Homework 1 extra problems

1. Let

$$f(x) = x^3 - x + ax \tag{1}$$

where a is a parameter.
(a) Find the local minima and maxima of this function. (Your answers should depend on a.)
(b) Find the inflection points. (Again, your answers should depend on a.)
(c) There is a special value of a at which the behavior of this function changes *qualitatively*. What is that value? Describe (in complete sentences) this qualitative change and illustrate your description with a couple of graphs.

2. Problem 30. on p. 180 in the calculus book.