Math 2250 HW #3
Due 1:25 PM Friday, September 2

Reading: Hass §2.5–2.6, 3.1 (these are sections 2.5–2.7 in the first edition).

Problems: Do the assignment "HW3" on WebWork. In addition, write up solutions to the following three problems and hand in your solutions in class on Friday.

1. At what values of x is the function $f(x) = \frac{x \tan x}{x^2+1}$ continuous?

2. For what value of a is the function

$$f(x) = \begin{cases} x^2 - 1 & \text{if } x < 5 \\ 2ax & \text{if } x \geq 5 \end{cases}$$

   continuous at every x?

3. Use the Intermediate Value Theorem to show that the equation

$$x^3 - 15x + 1 = 0$$

   has (at least) three solutions on the interval $[-4, 4]$.