Math 1400
Homework 7
Due March 16

Find the Absolute Max and Abs Min values, if they exists, over the indicated intervals:

1. $f(x) = 7 - 8x + 5x^2$ over $[-1, 1]$
2. $f(x) = 2x^3 - 3x^2 - 36x + 28$ over $[-2, 2]$
3. $f(x) = 80 - 9x^2 - x^3$ over $[-7, 1]$
4. $f(x) = 5 + x - x^2$ over $[0, 2]$
5. $f(x) = \frac{4x}{x^2+1}$ over $[-3, 3]$
6. $f(x) = x + \frac{4}{x}$ over $[-8, -1]$
7. The financial analysis department of a large company determined that the cost of producing x number of its product to be $C(x) = 15,000 + 20x$. The department also determined that the associated price-demand function is $p = 100 - 0.005x$, where p is the price in dollars.
   (a) Find the revenue function.
   (b) Find the profit function.
   (c) Determine the production level for the number of items (interval) that will yield a profit.
   (d) Determine the number of items, x, that will yield the maximum profit and the maximum profit in dollars.
8. An office supply company sells x heavy-duty paper shredders per year at dollar p per shredder. The price-demand equation for these shredders is $p = 300 - \frac{x}{30}$. What price should the company charge for these shredders to maximize its revenue? What is the maximum revenue?