Name _____

Homework 13
Section 4.4

To receive full credit, answers should be found using the methods of sections 4.1 and 4.4, not simply by using a calculator.

1. (6) Find the absolute extrema of the function $f(x) = 4x^3 - 3x^2 - 90x + 21$ in the interval $-4 \leq x \leq 6$. Give the **coordinates** of each.

2. (7) A company determines that their average cost (in dollars per widget) to produce widgets can be modeled by $\overline{C}(x) = -0.12x^{5/2} + 21.6\sqrt{x} + 2.3$, where x is measured in thousands of widgets. Due to manufacturing constraints, the company can produce between 500 and 13,000 widgets per day. How many widgets should the company produce per day in order to minimize their average cost per widget?

3. (7) Determine the absolute maximum and minimum *values* of $f(x) = \dfrac{-2x+3}{x^2+10}$ on the interval $[-10, 0]$. Round to 4 decimal places if necessary.