**1.** (6 pts) Suppose the function $f$ satisfies $f'(x) = 4(x+1)^2(x-2)$.
(1) Find the critical point(s) of $f$.
(2) Find the intervals on which $f$ is increasing or decreasing.

**2.** (7 pts) Suppose the function $f$ satisfies $f''(x) = 12(x^2 - 1)$.
(1) Find the intervals on which $f$ is concave up or concave down.
(2) Find the inflection point(s) of $f$.

**3.** (7 pts) The function $f(x) = x^4 - 6x^2 - 8x$ satisfies the equations in Problems 1 and 2 above. Use your answers to Problems 1 and 2 to sketch the graph of $f$ (on the back side). Label the critical point(s) and the inflection point(s).