Math 157 - Quiz 8

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (10 points) Let $g(x) = x^4 - 4x^3$ on $[-1, 4]$.

   - Find open intervals on which g is increasing/decreasing.
   - Identify all relative extrema.
   - Identify the absolute extrema.

2. (Bonus: 2 pts ex cred) Let $f(x) = x^{8/3} - 16x^{2/3}$. Find the critical numbers of f.

3. (Bonus: 3 pts ex cred) A spherical snowball is placed in the sun. The sun melts the snowball so that its radius decreases $1/4$ in per hour. Find the rate of change of the volume with respect to time at the instant the radius is 4 in.