Name: _____

Show all work and circle/box your final answer. All answers must be simplified unless stated
otherwise. If you finish early, you may leave with my approval.

1. (*0 points*) Consider the function $f(x) = x^4 - 4x^3$

  (a) Find the open intervals where f is increasing and the intervals where f is decreasing.

  (b) Find both coordinates of any local extrema of the graph of f.

  (c) Find the intervals where f is concave up, and the intervals where f is concave down.

  (d) Find both coordinates of the inflection points of f.

  (e) Using the above information, sketch the graph of $y = f(x)$

2. (*0 points*) A farmer has 2400 ft of fencing and wants to fence off a rectangular field that borders a straight river. He needs no fence along the river. What are the **dimensions** of the field that has the largest area?

River

x   x

y