

MAT1500-03/11 OOF Quiz 9 Print Name (Last, First) \_\_\_\_\_

Show all work on this sheet, including indications of mental steps, in a clearly organized way that speaks for itself. Use proper mathematical notation. Box final short answers. 10

① Discuss the curve  $y = x^4 - 4x^3$  with respect to:

- a) its increasing/decreasing behavior, critical points, local maxima and minima,
- b) concavity and points of inflection, and
- c) use this information to sketch the curve, labeling all important points by both coordinates  $(x_0, y_0)$ .

Make sure you give sign diagrams for  $\frac{dy}{dx}$  and  $\frac{d^2y}{dx^2}$  accompanied by the appropriate icons: / \  $\rightarrow$   $\curvearrowright$   $\curvearrowleft$   $\oplus$ .