

Name: _____

Signature: _____

This is a take home exam (honor system) and is due at 8:30 AM on November 26, 2008. **Do not work together!**

1. Given

$$f(x) = \sqrt[3]{x}e^{-x^2},$$

and a partial graph of f .

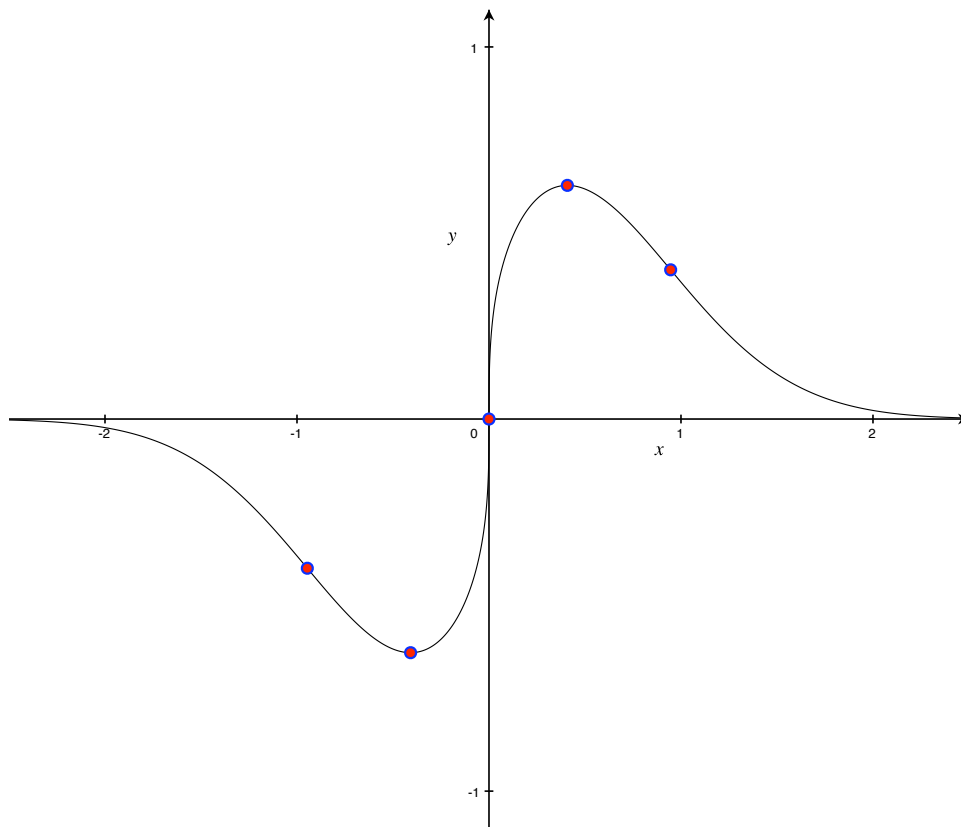


Figure 1: Partial graph of f with some important points indicated.

Questions about f are on the next page.

Answer each of the following questions. I don't need to see your work. It's okay to use a computer, but do not use *decimals*—exact answers only! Answers must be **BOXED**.

- (a) **3 points** Find and simplify f' .
- (b) **4 points** Find and simplify f'' .
- (c) **3 points** Find the maximal point on f .
- (d) **3 points** Find the minimal point on f .
- (e) **9 points** Find the points-of-inflection on f .