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 \( f \).