Practice for quiz 3

2026-10-28

Here are a few more practice problems for our next quiz this Friday.

Problems

1. We'd like to generate a rational approximation to $\sqrt{8}$. To do so, let $f(x) = x^2 - 8$ and let $x_0 = 1$. Then,
   a. Write down the corresponding Newton's method iteration function for f.
   b. Compute two Newton steps from $x_0 = 1$.
2. Figure 1 shows the graph of $f(x) = x\,e^{-x^2}$. Find the exact locations of any inflection points that you see.
3. I've got 1000 meters of fence to build a corral. The corral will be partitioned into three pieces as shown in Figure 2. What is the maximal total area that I can enclose?

Figures

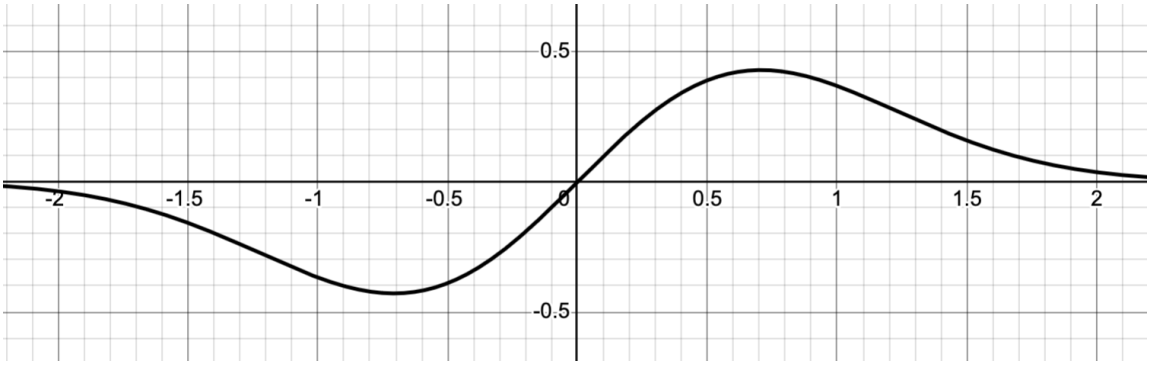


Figure 1: The graph of $f(x) = xe^{-x^2}$.

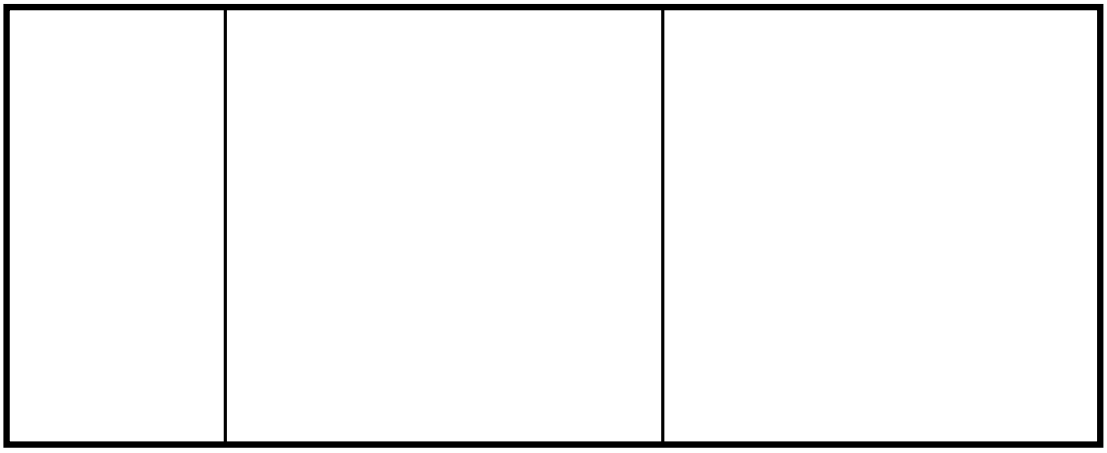


Figure 2: A corral partitioned into three pieces