MATH 2250 - Royal Homework Name _____
Sections 3.11, 4.1
Remember to always show all supporting work.

1. (5 points) (See WeBWorK 4.1 # 12, modified) Let $f(x) = \sqrt{x^2 - 1}$.

   (a) (Review.) Determine the domain of $f(x)$. Show work that supports your answer.

   (b) List the critical points of $f(x)$ below in increasing order.

   (c) (Review.) Determine $\lim_{x \to \infty} f(x)$ and $\lim_{x \to -\infty} f(x)$. Explain briefly.

   (d) Make a rough sketch of the graph of $f(x)$.

   (e) Determine the coordinates of the absolute maximum and minimum values of the function below. If the extrema occurs at more than one point, use the smallest "x" value.

2. (3 points) (See WeBWorK 3.11 # 9) Estimate the volume of material in a cylindrical shell with height 30 in., radius 8 in., and shell thickness 0.5in. (Hint: Visualize the shell as a roll of paper towels and use dV.)

3. (2 points) What went well on the second exam? Is there anything you'd like to do better next time?