1. For the function $f(x) = (1 - x)^{\frac{1}{3}}$ do the following: (no graph necessary)
   (a) Find the open intervals where $f(x)$ is increasing and where it is decreasing, and deduce where $f$ has local maxima and minima.

   (b) Find when $f$ is concave up and when $f$ is concave down. Determine any inflection points.
2. Let \( f(x) = \frac{x^2}{x^2 - 1} \). Please carefully sketch the graph of \( y = f(x) \). In so doing, please identify and label the open intervals of increasing and decreasing, the local extrema, the open intervals of concave up and down, and the horizontal or vertical asymptotes.