4.4 Curve Sketching

- Guide lines for Sketching a Curve
  A. Domain
  B. Intercepts: \( x \)-intercept \& \( y \)-intercept
  C. Symmetry
  D. Asymptotes
  E. Intervals of Increase or Decrease
  F. Local Maximum and Minimum Values
  G. Concavity and Points of Inflection
  H. Sketch the curve
Exp. Sketch the graph of the following functions.

(1) \( f(x) = x^4 - 4x^3 \)

(2) \( f(x) = \frac{2x^2}{x^2 - 1} \)

(3) \( f(x) = \frac{x}{x^2 + 9} \)

(4) \( f(x) = \frac{x^3}{x^2 + 1} \)
(1) \( y = x^4 - 4x^3 \)

(2) \( y = \frac{2x^2}{x^2 - 1} \)

(3) \( y = \frac{x^3}{x^2 + 1} \)

(4) \( y = x \)
Exercise 4.4 1, 5, 7, 9, 12, 13, 14.