- 1. Consider the function $f(x) = x^4 2x^2 + 1$.
 - a) Find the intervals on which f is increasing or decreasing.
 - b) Find the local min/max of f.
 - c) Find the intervals of concavity and the inflection points.

2. Use the previous problem to sketch the function $f(x) = x^4 - 2x^2 + 1$.

3. Consider the function $f(x) = \frac{x}{\sqrt{x^2+1}}$. Find the following:

Domain, intercepts, symmetry, asymptotes (horizontal and vertical), intervals of increase or decrease, local min/max, concavity and points of inflection. Use the data to sketch the curve. 4. Find the critical numbers of the function

a)
$$g(x) = x^{\frac{1}{3}} - x^{\frac{-2}{3}}$$

b)
$$f(x) = 1 + (x - 3)^2$$
 on $(-2, 3]$

5. Find the relative and absolute minimum and maximum values for the function depicted below

