1. Consider the function $f(x)=x^{4}-2 x^{2}+1$.
a) Find the intervals on which $f$ is increasing or decreasing.
b) Find the relative $\min / \max$ of $f$.
c) Find the intervals of concavity and the inflection points.
2. Use the previous problem to sketch the function $f(x)=x^{4}-2 x^{2}+1$.
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 $(-2,3]$

