1) For the function \( f(x) = x^4 - 2x \) find out where it is decreasing and where it is concave up.

\[
f(x) = x^4 - 2x \\
f'(x) = 4x^3 - 2 \\
f''(x) = 12x^2
\]

Find points where \( f'=0 \)
\[
f''(x) = 4x^3 - 2 = 0 \\
x^3 = \frac{1}{2} \\
x = \sqrt[3]{\frac{1}{2}}
\]

Find points where \( f''=0 \)
\[
f''(x) = 12x^2 = 0 \\
x = 0
\]

\[f'(-1) = -6 \text{ decreasing} \quad f'(0) = -3/2 \text{ decreasing} \quad f'(1) = 2 \text{ increasing}\]

\[f''(-1) = 12 \text{ concave up} \quad f''(0) = 3 \text{ concave up} \quad f''(1) = 12 \text{ concave up}\]

\(-\infty \quad 0 \quad \sqrt[3]{2} \approx 0.794 \quad \infty\)
2) Sketch a graph of the function on the other side (problem #1) showing all local MAX, local MIN, and inflection points. 

\[ f(0) = -2 \]