Problem Set 19: Concavity and Points of Inflection

Find the points of inflection and the intervals where $f(x)$ is concave up and concave down.

1. $f(x) = x^4 + 10x + 5$

2. $f(x) = \frac{x^3}{3} - \frac{x^2}{2} - 2x + 4$

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

4. $f(x) = \frac{3}{4}(x^2 - 1)^{2/3}$

5. $f(x) = \tan x, \quad -\frac{\pi}{2} < x < \frac{\pi}{2}$

6. $f(x) = \sin|x|, \quad 0 \le x \le 2\pi$