

MATH 220: CALCULUS I
WORKSHEET 14
MARCH 5, 2013

1. What function y satisfies the differential equation $\frac{dy}{dx} = -x$ and goes through the point $(0, 1)$?

2. Does the function $f(x) = x^9 + x^5 + x + 1$ have a local minimum or local maximum?

3. Let $f(x) = 5x^9 - 3x^5$. Find where f is increasing or decreasing. Find local maximum and minimum values of f . Find intervals of concavity and inflection points. Finally, sketch the graph using this information.

4. Find a point on the curve $y = \sqrt{x}$ that is closest to the point $(3, 0)$.