18.100A PROBLEM SET 5
due April 19th 9:30 am

You can collaborate with other students when working on problems. However, you should write the solutions using your own words and thought.

Problem 4. Determine whether the following function $f(x)$ is uniformly continuous on given interval $I$. Justify your answer.
   (1) $f(x) = x \sin(1/x)$ and $I = (0, 1)$.
   (2) $f(x) = \frac{x}{1 + x^2}$ and $I = (-\infty, +\infty)$.
Problem 5. Problem 13-6 page 194.
Problem 7. Exercise 17.3.3. Page 239.
Problem 8. Exercise 17.4.1.(a),(c) Page 239.
Problem 9. Find the 4-th order Taylor polynomial of $x^3 - 2x + 1$ at $-1$. (The answer must be given in the form of Taylor polynomial.)
Problem 10. Find a function $f(x)$ which is infinitely many times differentiable but not analytic. Explain why.