MATH 373: CLASS 3

1. Exercise

Yesterday we learnt n+1 points can uniquely determine the polynomial degree n. Today instead of giving you the points, we give you the value of the derivative.

1) a) Find the polynomial degree 2 such that $f(1) = 1, f'(1) = -1, f''(1) = 2$.

b) How many information about derivatives you need to uniquely determine the polynomial of degree n?

2) Change the rooting finding problem $x^3 + x^2 - 3 = 0$ to the fixed point form $x = g(x)$ in three different ways.

3) Use the Fixed-Point Iteration to find the fixed point accurate to $\frac{1}{10}$ of $g(x) = \frac{\sqrt{(3-x^4)}}{2}$, assuming $p_0 = 0$.

Date: July 11, 2007.