

Math 1A: Quiz 11
GSI: Theo Johnson-Freyd

Name: _____
Wednesday, 15 April 2009

You must always justify your answers. This means: show your work, show it neatly, and when in doubt, use words (and pictures!) to explain your reasoning. No justification = no points.

1. (10 pts) Provide an algorithm to calculate the root of $0 = x^5 - 80x + 200$ using Newton's Method. You must:
 - (a) Sketch a graph of $y = x^5 - 80x + 200$. Your graph can be rough, but it should be accurate enough to suggest a good starting value x_1 for Newton's Method.
 - (b) Specify the formula to calculate x_{n+1} in terms of x_n .

2. (bonus) Calculate x_3 using your answers above (and without the aid of any electronics). Round your answer to the nearest 0.01.