

Name: _____

3b

Section: _____

Math 165

Test 3b

Part 1

Friday, April 2, 2004

10 points each. This page will be collected after the first 10 minutes.

Evaluate the anti-derivatives:

1. $\int (-5x^{16} + 2x^{1.7} + x^{-6})dx =$

2. $\int (13\sin(x) + 11\cos(x) - 3x^6)dx =$

2. (15 points)

a) Draw the first 2 iterations of Newton's method starting at $x_0 = 0$ on the graph of f below (i.e., find x_1 and x_2 graphically)

b) $f(x) = \cos x - x$. Carry out the first 2 iterations of Newton's method numerically starting at $x_0 = 2$ (i.e., find x_1 and x_2 numerically). Your answers should have at least 5 digits after the decimal place.

3. (15 points) Solve the differential equation $\frac{dy}{dx} = (x - 5)\sqrt{y}$ with initial condition $y(0) = 4$.

Extra credit (3 points): Briefly describe a practical application of the Mean Value Theorem.