

20100 Calculus I, Spring 2003

Test 3, April 11, 2003

1. Find $\frac{dy}{dx}$ by implicit differentiation.

$$x \cos y + y \cos x = 1$$

2. Find the first and the second derivatives of the function $g(s) = s^2 \cos s$
3. Use differentials (or, equivalently, a linear approximation) to estimate the number $(1.001)^6$
4. Sketch the graph of the function $y = \sqrt{x} - \sqrt{x-1}$
5. A rectangular storage container with an open top is to have a volume of $10m^3$. The length of its base is twice the width. Material for the base costs \$10 per square meter. Material for the sides costs \$6 per square meter. Find cost of materials for the cheapest such container.