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Math 1501D October 6, 2010

**Your Name: V - Your GT id: W**

Instructor: Huy Huynh

Please circle your section: D1[J0rdan Gallivan) D2(Wii1iam Rorabaugh)

D3(Richard Halim) D4(Jackie Rand)

Instructions:

TO RECEIVE CREDIT YOU MUST SHOW ALL YOUR WORK and WRITE

NEATLY. Be sure to explain your answers. .

The format will be closed book, closed notes and no cell phones, blackberries or other such devices are allowed while taking this test.

You are allowed to use a BASIC (110n-programmable) calculator.

There are 7 problems on 8 pages.

Time Allowed: 50 minutes

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Problem 1. (15 points) Find the critical points(5 pts Then ﬁnd and classify all (local and abs0lute)the extreme values (10 pts Be sure to write extremes in format (ac, f

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Problem 2. 15 points) Describe the concavity of the graph ( 10 pts)and ﬁnd the p0int(s) - of inﬂection (5 pts).Be sure to writahhe point of inﬂection in format of (az,

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Problem 3. [20 points) An object moves along the x-axis, its position at time t Z O given by Determine the interva.l(s), if any, during which the object is both moving right (a:(t) increases) and slowing down.

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Problem 4. (20 points) A 13-foot ladder is leaning against a vertical wall. If the bottom of the ladder is being pulled away from the wail at the rate of 2 feet per second, how fast is the area of the triangle formed by the wall, the ground, and the ladder changing when

the bottom of the ladder is 12 feet from the wall?

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Problem 5. (20 points) Use a differential to estimate the value of the 10031/3. Then compare your estimate with the result given by a calculator.

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Bcnus problem. (3 points) Prove that for all real 2; and y:

Icosac —— cosy] y]