Math 1314 ONLINE
Alternate Assignment 10

Record your answers to these questions on the Alternate Assignment 10 answer sheet and upload your work to the Alternate 10 slot on the Assignments tab at casa.uh.edu by Sunday, March 31, 2013, at 11:59 p.m. All work must be submitted electronically. Late work will not be accepted.

Suppose $f(x)=\frac{3}{2}x^2-2x+12$ and you want to approximate the area between the graph of the function and the x axis on the interval [0, 8]. For questions 1 – 5, show your work. Do not use GGB.

1. Find Δx if you use 4 rectangles.
2. List the subintervals if you use 4 rectangles.
3. Find the approximate area if you use 4 rectangles and left endpoints.
4. Find the approximate area if you use 4 rectangles and right endpoints.
5. Find the approximate area if you use 4 rectangles and midpoints.

Suppose $f(x)=\frac{2}{5}x^4-\frac{3}{17}x^3-\frac{5}{16}x^2+\frac{7}{8}x+22$ and you want to approximate the area between the graph of the function and the x axis on the interval [-1.289, 2.1681]. Do these problems using GGB.

6. What is the command and values that you would use to find the approximate area between the function and the x axis on the interval using 28 rectangles and midpoints?
7. Find the approximate area if you use 28 rectangles and midpoints.
8. What is the command and values that you would use to find the approximate area between the function and the x axis on the interval using 49 rectangles and right endpoints?
9. Find the approximate area if you use 49 rectangles and right endpoints.
10. Find the approximate area if you use 53 rectangles and left endpoints.

Suppose you want to fence in a grazing pasture along the straight edge of a river. The side along the river does not need to be fenced. You want to subdivide the pasture into two parts by constructing a fence that is perpendicular to the river and parallel to the two ends of the pasture. (The two smaller parts are not the same size.) You have 2500 yards of fencing material to use. You want to fence in the largest possible area.

11. What is the objective of the problem?
12. Draw a picture that represents the situation that is described.
13. Write a function that gives the area of the whole pasture.
14. Find the critical number(s).

15. Use the second derivative test to determine if you have found a maximum or a minimum at each critical number.
16. Find the total area that you can fence in.

Suppose you want to construct an open box from a rectangular sheet of metal but cutting equal squares from each corner and folding up the resulting flaps. The metal measures 28 inches by 20 inches. What are the dimensions of the box that will have the maximum volume?

17. What is the objective of the problem?
18. Draw a picture that represents the situation that is described.
19. Write a function that gives the volume of the box.
20. Find the critical number(s).
21. Use the second derivative test to determine if you have found a maximum or a minimum at each critical number.
22. Answer the question that is posed.