MATH 203 Calculus III
Homework 8

Basic Information

This assignment is due on Gradescope by **3 PM on Friday, October 4**.

Make sure you understand MHC honor code and have carefully read and understood the additional information on the class syllabus. I am happy to discuss any questions or concerns you have!

Since this is a 200-level mathematics course, quite a few homework questions will ask you to explain your reasoning or process for solving a problem. Whenever possible, write your explanations in complete sentences and write your answers as if you were explaining to a peer in the class.

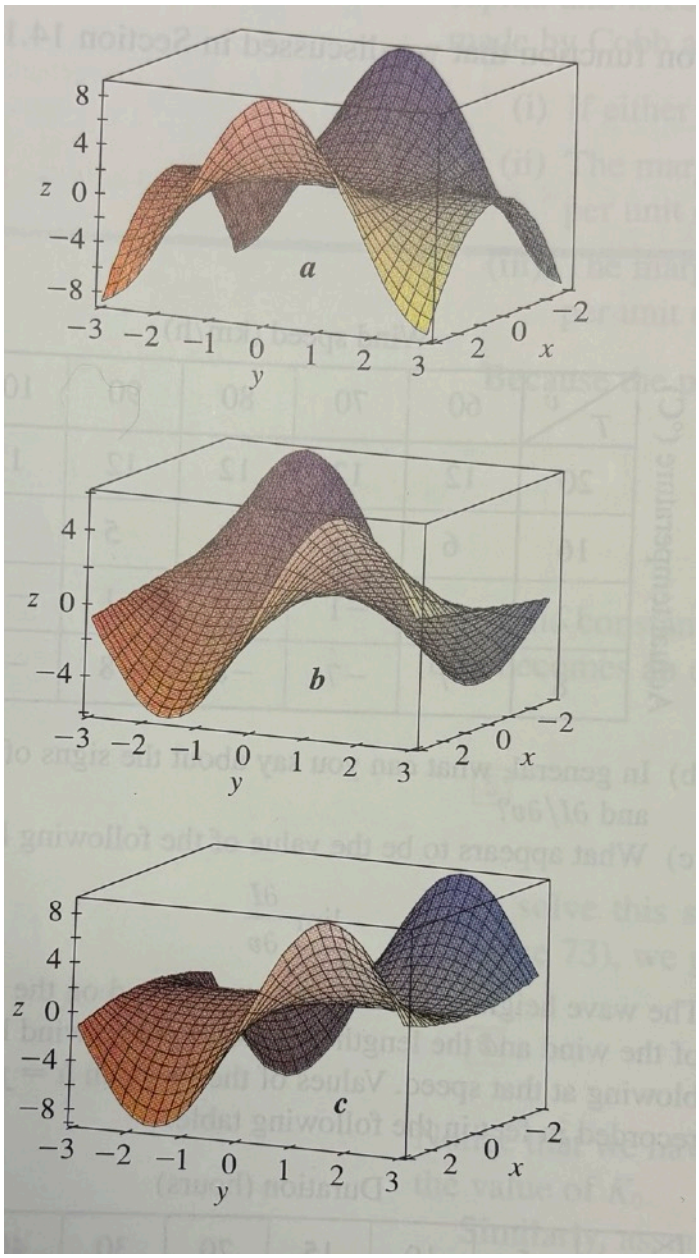
The homework problems will be graded anonymously so please do not put your name or other identifying information on the pages.

Turn In Problems

- 12.3: 8, 12, 18, 26, 28
- 12.7: 20 (Use the point (3,-1) instead of (2,1).)
- #7. Find the tangent plane of the function $f(x,y) = \sqrt{20 - x^2 - 7y^2}$ at (2,1) and use the tangent plane to approximate $f(1.95,\ 1.08)$
- #8. On the next page are three surfaces, labeled a, b, and c. One of the graphs is a function f and the other two are graphs of the partial derivatives f_x and f_y. Determine which surface is which, and give reasons for your choices.

Additional Problems (to do on your own, not to turn in)

- 12.3: 7, 11, 15, 17, 27
- 12.7: 19, 20 <— Think about what is going on at (2,1) based on the tangent plane there.


8
4
z 0
−4
−8
−3 −2 −1 0 1 2 3
y
2 0 −2
x
a
4
z 0
−4
−3 −2 −1 0 1 2 3
y
2 0 −2
x
b
8
4
z 0
−4
−8
−3 −2 −1 0 1 2 3
y
2 0 −2
x
c