

MATH 223      Fall 2023  
Assignment 17  
**Due: Wednesday, October 25**

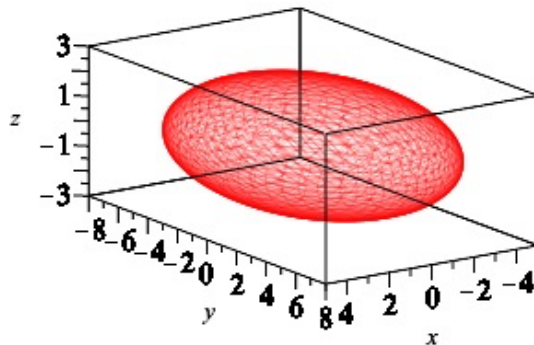
**Reading**

Read carefully Section 5.6 “Extreme Values” in our text *Multivariable Calculus: A Linear Algebra Based Approach*.

**Writing**

Write out careful and complete solutions of Exercises 13, 15, 16, and 17 of Chapter 5 as well as Problem A below.

- A. The equation  $\frac{x^2}{4} + \frac{y^2}{9} + z^2 - 6 = 0$  defines  $z$  implicitly as a function  $z=f(x,y)$  near the point  $\mathbf{P}$  where  $(x = 2, y = 3, z = -2)$ . The graph of the function  $f$  is a surface. Find its tangent plane at  $\mathbf{P}$ .



One View of the Surface Defined by  
The Equation  $\frac{x^2}{4} + \frac{y^2}{9} + z^2 - 6 = 0$