Math 126B **Calculus With Analytic Geometry III** **Spring 1995**

QUIZ #6 SOLUTIONS

The region D is the filled-in ellipse shown below, where the ellipse is described by the equation $4(x-3)^2 + 9y^2 = 36$. Using either ruler and pencil or computational methods, find the points in D where the function $g(x,y) = x + 4y$ takes its absolute maximum and minimum values. Be sure to show what method you use.

Maximum $\boxed{3 + \frac{146}{\sqrt{292}} \approx 11.5}$ at $(x,y) = \boxed{(3 + \frac{18}{\sqrt{292}}, \frac{32}{\sqrt{292}}) \approx (4.0, 1.9)}$

Minimum $\boxed{3 - \frac{146}{\sqrt{292}} \approx -5.7}$ at $(x,y) = \boxed{(3 - \frac{18}{\sqrt{292}}, -\frac{32}{\sqrt{292}}) \approx (1.9, -1.9)}$