## QUIZ 8 - MATH 251 YOUR NAME:

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Find the maximum volume of the largest box having one corner at the origin and the opposite corner at a point P = (x, y, z) on the paraboloid  $z = 1 - \frac{x^2}{4} - \frac{y^2}{9}$ , with  $x, y, z \ge 0$ .



2. Use Lagrange multipliers to find the point on the plane  $\frac{x}{2} + \frac{y}{4} + \frac{z}{4} = 1$ , with minimum square distance from the origin.

