Math 241, Sections BL1 and BL2

Quiz # 3

October 11, 2012

Solve both exercises. Show work to get credit.

1) [5pts.] Use Lagrange multipliers to find the volume of the largest rectangular box in the first octant with three faces in the coordinate planes and one vertex in the plane

$$x + 9y + 8z = 27.$$

2) [5pts.] Find the length of the curve

$$\vec{r}(t) = \left\langle 6t, t^2, \frac{t^3}{9} \right\rangle, \quad 0 \leq t \leq 1.$$