

MATH 275 – Section 001 – Quiz 9

You may work with other class members on this quiz, but you may *not* receive assistance from people not in MATH 275 (Section 001). You must show all of your work to receive full credit. Do all your work on other sheets of paper and be sure to staple all the pieces of paper together or **YOU WILL GET A ‘ZERO’ ON THE QUIZ**. Do not use decimal approximations unless asked to do so. Your work on this quiz must be handed in by Monday, 11 October 2002 at 9:40 a.m. **GOOD LUCK!**

1) Consider the tetrahedron E whose vertices are the points $(0, 0, 0)$, $(2, 0, 0)$, $(0, 3, 0)$, and $(0, 0, 6)$.

a) Find the volume of E .

b) Suppose a density function for all points in E is given by $\rho(x, y, z) = 6 - x$. Find the mass of E .

2) Consider the solid bounded by the circular paraboloid $z = 9 - x^2 - y^2$ and the x - y plane. Find the volume of this solid.

3) Find the volume of the solid that lies within the sphere $x^2 + y^2 + z^2 = 36$, above the x - y plane, and below the cone $z = \sqrt{3x^2 + 3y^2}$.