

AMAT 309 L02 Winter 2003
Quiz 8 30 Minutes

NAME: _____ ID: _____

1. Sketch the “ice cream cone” bounded by $z \geq 0$, $z^2 = 3(x^2 + y^2)$,
 $x^2 + y^2 + z^2 = a^2$, and find its volume. [40]

2. Prove the identity $\nabla \bullet (g\mathbf{F}) = (\nabla g) \bullet \mathbf{F} + (g)(\nabla \bullet \mathbf{F})$. [30]

3. Find the work done by the force field $\mathbf{F} = \langle y, z, -x \rangle$ on a particle that moves along the straight line from $(0, 0, 0)$ to $(2, 2, 2)$. [30]