Quiz 3   Calculus 3   Due 10/24/2011

Each problem is worth 5 points. Clear and complete justification is required for full credit. This is an open-book, open-note, open-neighbor, take-home-if-you-like quiz.

1. A solid E lies within the cylinder $x^2 + y^2 = 4$, below the plane $z = 5$, and above the paraboloid $z = 4 - x^2 - y^2$. The density at any point is proportional to its distance from the axis of the cylinder. Find the mass of E.

2. Evaluate $\displaystyle\int_0^3 \int_0^{\sqrt{9-x^2}} \int_{\sqrt{x^2+y^2}}^3 5\, dz\, dy\, dx$.

3. Do #26 in §15.8.