Math 225: Calculus III Name:_____
Quiz 10 *December 4, 2003* Section:_____

1. Compute the surface integral $\iint_S (1-z)\,dS$ where S is the unit upper hemisphere, $z = \sqrt{1-x^2-y^2}$.

2. Let S be the surface parameterized by $\mathbf{r}(u,v) = \langle u\cos(v), v/\pi, u\sin(v)\rangle$, $0 \le u \le 1$, $0 \le v \le 4\pi$. Compute the flux integral $\iint_S \mathbf{F}\cdot\mathbf{n}\,dS$ where $\mathbf{F}(x,y,z) = x\mathbf{i} + y\mathbf{j} + z\mathbf{k}$ and $\mathbf{n}$ is the unit normal to S oriented in the positive y direction.