Quiz 10 Calculus 3 11/18/2009

Each problem is worth 5 points. Clear and complete justification is required for full credit.

1. Evaluate $\int_C y^3 dx - x^3 dy$, where C is the circle $x^2 + y^2 = 4$.

2. Let $\mathbf{F}(x, y, z) = \langle 2,0,0 \rangle$ and S be the portion of $x = y^2 + z^2$ behind $x = 4$, oriented in the direction of the positive x axis. Compute $\iint_S \mathbf{F} \cdot d\mathbf{S}$.