Name: _____

There are 20 points possible on this quiz. This is a closed book quiz and closed note quiz. Calculators are not allowed. If you have any questions, please raise your hand.

1. Assume C is the upper half of the unit circle $x^2 + y^2 = 1$.

    (a) (2 points) Give a complete parametrization of C.

    (b) (2 points) Assume $\displaystyle\int_C (2 + x^2 y)\,ds = 2\pi + \frac{2}{3}$. Explain what this means geometrically. Be specific.

2. (8 points) Evaluate the line integral $\displaystyle\int_C yz \cos x\,ds$ where C is the curve parametrized by $x = t$, $y = 3\cos t$ and $z = 3\sin t$ for $0 \le t \le \pi/2$.

3. (a) (6 points) Evaluate the line integral $\int_C \mathbf{F} \cdot d\mathbf{r}$ where $\mathbf{F}(x, y) = e^{2x}\,\mathbf{i} + xy\,\mathbf{j}$ and C is given by $\mathbf{r}(t) = t^3\,\mathbf{i} + (1 + t)\,\mathbf{j}$ for $0 \leq t \leq 1$.

(b) (2 points) Interpret your answer from part (a).