**(Easier) Practice Quiz 9 Calc 3 11/20/2006**

1. Parametrize and give bounds for the portion of the paraboloid $z = x^2 + y^2$ lying above the rectangle with vertices (0,0), (2,0), (2,3), and (0,3).

   $x(u, v) = u$
   $y(u, v) = v$
   $z(u, v) = u^2 + v^2$

   for $0 \le u \le 2$, $0 \le v \le 3$

2. Parametrize and give bounds for the portion of the cylinder with radius 4 centered around the $z$-axis between $z = 2$ and $z = 10$.

   $x(u, v) = 4 \cos u$
   $y(u, v) = 4 \sin u$
   $z(u, v) = v$

   for $0 \le u \le 2\pi$, $2 \le v \le 10$

**(Harder) Practice Quiz 9 Calc 3 11/20/2006**

1. Parametrize and give bounds for the rectangle with vertices (3,0,0), (3,2,0), (3,2,5), and (3,0,5).

   $x(u, v) = 3$
   $y(u, v) = u$
   $z(u, v) = v$

   for $0 \le u \le 2$, $0 \le v \le 5$

2. Parametrize and give bounds for the right half (i.e. the portion with positive $y$ coordinates) of the cylinder with radius $a$ and centered on the $x$-axis between $x = 0$ and $x = 5$.

   $x(u, v) = u$
   $y(u, v) = a \cos v$
   $z(u, v) = a \sin v$

   for $0 \le u \le 5$, $-\pi/2 \le v \le \pi/2$