Quiz 3 Calc 3 11/23/2015

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 $0 \le u \le 2\pi$

$2 \le v \le 10$

3. Parametrize and give bounds for the top half of a sphere with radius 5, centered at the origin.

$x(u,v) = 5\sin v \cos u$

$y(u,v) = 5\sin v \sin u$

$z(u,v) = 5\cos v$

for $0 \le u \le 2\pi$

$0 \le v \le \pi/2$