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 $(0,3)$.

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

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

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 $x = 5$.