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 $x = 5$. 