Class Exercise 4

1. Find the volume of the region in the first octant bounded by the coordinate planes, the plane $y = 1 - x$ and the surface $z = \cos(\pi x/2)$, $0 \le x \le 1$.

2. Find

$$\iiint_P dV \ ,$$

where P is the solid whose base is the region between the circles $r = \cos\theta$ and $r = 2\cos\theta$ and whose top lies in the plane $z = 3 - y$.