Practice Math 2401

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Problem 1 (10 points)

Find the I_x, I_y, and I_z for the region given by $0 \leq x \leq a$, $0 \leq y \leq b$, $0 \leq z \leq c$.

Problem 2 (10 points)

Consider the region which is inside the cylinder
$(x-1)^2 + y^2 = 1$, above the xy plane, and below the surface
$x^2 + y^2 + z^2 = 1$. Set up the (triple) integral for the volume in cyclindrical coordinates.

Problem 3 (10 points)

Find the area of the region i of the xy plane given by $1 \le x + 2y \le 2$ and $2 \le x - y \le 4$. Hint: Change variables.