1. Let $D$ be the region in the first octant bounded by the surfaces $x^2 + y^2 = 1$ and $x + z = 1$. Consider the integral

$$\iiint_D (x + y + z) \, dV.$$ 

For each of the following cases, write down the appropriate iterated integral. (Note that you DO NOT NEED TO EVALUATE the integral).

(a) $dz \, dx \, dy$

(b) $dx \, dz \, dy$

(c) $dx \, dy \, dz$

(d) $dz \, dr \, d\theta$ in cylindrical coordinates.
2. Find the mass of a cube with edge length 2 and density equal to the square of the distance from one corner.

3. **Bonus:** How many knots can you name? Which knots do you know how to tie?