1. Use triple integrals to find volume of the solid bounded by the surface $z = \sqrt{y}$ and the planes $x + y = 1$, $x = 0$ and $z = 0$.

2. Set up a triple iterated integral for the volume of the solid enclosed by the cylinders $x^2 + y^2 = 1$ and $x^2 + z^2 = 1$. 
1. Use spherical coordinates to evaluate \( \int_0^3 \int_0^{\sqrt{9-y^2}} \int_0^{\sqrt{16-x^2-y^2}} (x^2+y^2+z^2) \, dz \, dx \, dy \).
1. Use cylindrical coordinates to find volume of the solid enclosed by the paraboloid \( z = x^2 + y^2 \) and the plane \( z = 9 \).

2. Convert \( \int_{-1}^{1} \int_{0}^{\sqrt{1-y^2}} \int_{\sqrt{x^2+y^2}}^{\sqrt{x^2+y^2}} xyz \ dz \ dx \ dy \) to cylindrical coordinates. (Do not evaluate the resulting integral).
1. Write $\int \int \int_G f(x, y)z \, dv$ as an iterated integral in 3 different ways where $G$ is the solid $9x^2 + 4y^2 + z^2 = 1$.

2. Set up an iterated integral in spherical coordinates for the volume of the solid that lies above the cone $z = \sqrt{x^2 + y^2}$ and below the sphere $x^2 + y^2 + z^2 = z$. 