Math 2163
Jeff Mermin's section, Quiz 7, November 16

1. **(7 points each)** Express the following as iterated integrals. You may use any coordinate system you like, as long as you use it correctly and justify your work.

   (a) The volume of the region R using an iterated integral (or integrals), if R is the region between the surfaces $z = x^2 + y^2$ and $z = 25 - x^2 - y^2$, and above the first and fourth quadrants (that is, $x \geq 0$).

(b) The mass of the tetrahedron with vertices $(1,1,1)$, $(1,0,0)$, $(0,1,1)$, and $(1,1,0)$, if its density is given by $\rho(x,y,z) = x+y$.

(c) The volume of the "ice cream cone" above $z = \sqrt{x^2+y^2}$ and inside $x^2+y^2+z^2 = 4$.