MATH 253 – WORKSHEET 29
TRIPLE INTEGRALS

(1) Evaluate $\iiint_E e^{x+y+z} \, \mathrm{d}V$ where E is the tetrahedron with vertices $(3,0,0)$, $(0,2,0)$, $(0,0,1)$, $(0,0,0)$.

(2) Let E be the solid region between the plane $x = 4$ and the paraboloid $x = y^2 + z^2$. Set up the limits for the integral $\iiint_E f \, \mathrm{d}V$
   (a) Integrating $\int \mathrm{d}y \int \mathrm{d}z \int \mathrm{d}x f$
   (b) Integrating $\int \mathrm{d}x \int \mathrm{d}y \int \mathrm{d}z f$.

(3) Consider the iterated integral $\int_{x=0}^{x=1} dx \int_{y=\sqrt{x}}^{y=1} dy \int_{z=0}^{z=1-y} dz f$. Write the other 5 equivalent integrals coming from changing the order of integration.