Math 324 B - Winter 2017, Chapter 15 Review HW

1. Stewart 15.7 # 22: Use a triple integral to find the volume of the solid enclosed by the cylinder $x^2 + z^2 = 4$ and the planes $y = -1, y + z = 4$.

2. Stewart 15.8 # 20: Evaluate

$$\iiint_E x \, dV,$$

   where E is the solid enclosed by the planes $z = 0$ and $z = x+y+5$, and the cylinders $x^2+y^2 = 4$, $x^2+y^2 = 9$.

3. Stewart 15.9 # 26: Evaluate

$$\iiint_E xyz \, dV,$$

   where E lies between the spheres $\rho = 2$ and $\rho = 4$ and above the cone $\phi = \pi/3$.

4. Stewart 15.10 # 18: Evaluate

$$\iint_R (x^2 - xy + y^2) \, dA,$$

   where R is the region bounded by the ellipse $x^2 - xy + y^2 = 2$, using the change of coordinates $x = \sqrt{2}u - \sqrt{2/3}v, y = \sqrt{2}u + \sqrt{2/3}v$.