Math 2415

Friday Problem Session on 15.3, 15.6-15.8

1. 15.3.9
2. 15.3.11
3. Sketch the region bounded by the following surfaces. Each pair of the surfaces intersects in a curve. Be sure to include these curves in your sketch. Then use a triple integral to calculate the volume of the solid.Do **two parts**:
   (a) $z = x^2 + y^2$, $x = 0$, $y = 0$, $z = 0$, $x + y = 1$.
   (b) $x = z^2$, $x = 8 - z^2$, $y = 1$, $y = 3$.
   (c) $y = z^2$, $y = z$, $x + y + z = 2$, $x = 0$
4. 15.6.15
5. 15.6.21
6. 15.7.21
7. 15.7.25 (a)
8. 15.8.25
9. 15.8.36
10. 15.3.29
11. The paraboloid $z = x^2+y^2$ and the slanted plane $z = 3+2x$ intersect in a curve, C, in space. By setting these two equations equal to each other, get an equation involving just x and y. Use this equation to sketch the shadow of the curve C on the xy-plane. Also sketch the solid that lies between the paraboloid and the slanted plane, and be sure to include the curve C in your sketch.
12. 15.8.23