MA 3330: Worksheet 2

1. $\iint_R (2x + 5y)dA$ where R is the region in the first quadrant defined as between $y = x^3$, $y = x^3 + 1$ and $x = 1$.

2. $\iint_R 4dA$ where R is the region defined as between $x = y^2$, and $y = x - 2$.

3. $\iint_R e^{x^2}dA$ where R is the region defined as between $y = x + 4$, $y = -x + 4$ and the x-axis.

4. $\iint_R 4dA$ where R is the region defined as between $x = y^2$, and $y = x - 2$.

5. $\iint_R (x^2 + y^2)dA$ where R is the region defined as inside the circle $x^2 + y^2 = 9$ in the upper half plane.

6. $\iint_R (x^2 + y^2)^2 dA$ where R is the region defined as inside the circle $x^2 + y^2 = 4$.

7. $\iint_R \sin(x^2 + y^2)dA$ where R is the region defined as inside the circle $x^2 + y^2 = 16$.

8. Find the area of the region D, which is the region inside the disk $x^2 + y^2 \leq 4$ and to the right of the line $x = 1$.

9. Find the volume of the solid bounded by the paraboloid $z = 2 - 9x^2 - 9y^2$ and the plane $z = 1$.

10. Find the volume of the solid bounded by the cylinder $x^2 + y^2 = 1$ and the planes $z = 0$ and $z = 1$.

11. Find the volume below $z^2 = 4 - x^2 - y^2$ and xy-plane.

12. Find the volume between $z = 8 - x^2 - y^2$ and $z = x^2 + y^2$.