Math 213 Class 11: Surfaces

1. Set up and compute the surface integral for the part of the surface $z = x^2 - y^2$ inside the cylinder $x^2 + y^2 = 9$.

2. Compute the surface area of the part of the surface $z = y^2$ above the triangle with vertices $(0, 1, 0)$, $(1, 0, 0)$, and $(1, 1, 0)$.

3. Compute the surface area of the part of the plane $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$ $(a > 0, b > 0, c > 0)$ in the first octant $(x \geq 0, y \geq 0, z \geq 0)$.