

Math 2415

Homework on 15.2

1. Calculate $\iint_D x^2 dA$ where D is the triangular domain with vertices $(1, 1)$, $(4, 1)$ and $(5, 2)$.
2. Evaluate $\iint_D y dA$ where D is the domain bounded by the parabolas $x = 1 - y^2$ and $x = y^2 - 1$.
3. Find the volume of the tetrahedron bounded by the planes $x = 0$, $y = 0$, $z = 0$, and $x + 2y + 3z = 6$.
4. $\int_0^2 \int_{y/2}^1 ye^{x^3} dx dy$.
5. Calculate $\int_{y=0}^{y=2} \int_{x=y}^{x=2} e^{-x^2} dx dy$.
6. Evaluate the integral $\int_0^8 \int_{\sqrt[3]{y}}^2 4e^{x^4} dx dy$.