

Math 53 Discussion Problems Oct 17

1. Evaluate the following integrals

(a) $\int_0^3 \int_{-2}^0 (x^2y - 2xy)dydx$

(b) $\int_0^1 \int_0^1 \frac{y}{1+xy} dx dy$

(c) $\int_0^1 \int_0^{y^3} 3y^3 e^{xy} dx dy$

(d) $\int_0^8 \int_{\sqrt[3]{x}}^2 \frac{1}{y^4 + 1} dy dx$ (Hint: Change the order of integration)

(e) $\int \int_R x^2 dA$ where R is the region enclosed by the parabola $y = 2 - x^2$ and the line $y = x$

(f) $\int \int_R y - 2x^2 dA$ where R is the region bounded by the square $|x| + |y| = 1$