# General 2D integrals

Lecture for 6/25

# General 2D integrals

We can find the integral for a general 2D region

# Switching Order of Integration

- We can switch order of integration

# Average Value

Average value of function f over region R:

- Equal to $(1/A) \iint_R f(x, y)\, dx\, dy$ where A is area of R

# Practice Problems

Evaluate $\iint_D f(x, y)\, dA$ for these functions and regions:

- $f(x, y) = 4xy - y^3$, D is region bound by $y = x^{1/2}$ and $y = x^3$
- $f(x,y) = x^2 - 2y$, D is triangle with vertices (0,3), (1,1), (5,3)
- $f(x, y) = e^{x/y}$, $D = \{(x, y): 1 \leq y \leq 2, y \leq x \leq y^3\}$

# Scratchwork