

Worksheet for Section 14.1

Suppose that f is continuous for $0 \leq x \leq 1$ and $0 \leq y \leq 1$, and that $0 < a < 1$. For each of the following iterated integrals, sketch the region R of integration. Then reverse the order of integration.

(a)

$$\int_0^1 \int_0^{\min\{a,y\}} f(x,y) dx dy,$$

where $\min\{a,y\}$ denotes the smaller of the two values a and y (and depends on the value of y in $[0, 1]$).

(b)

$$\int_0^1 \int_{\max\{a,y\}}^1 f(x,y) dx dy.$$

(c)

$$\int_0^1 \int_0^{\min\{a,y^2\}} f(x,y) dx dy.$$

(d)

$$\int_0^1 \int_{\max\{a,y^2\}}^1 f(x,y) dx dy.$$