

Identifying regions of integration

EXAMPLE 1. Identify the region of integration for the following integral.

$$\int_0^1 \left(\int_0^{y^{1/3}} f(x, y) dx \right) dy.$$

Then, write down the integral with the order of integration reversed.

EXAMPLE 2. Identify the region of integration for the following integral.

$$\int_0^1 \int_{y^{1/3}}^1 f(x, y) dx dy.$$

Then, write down the integral with the order of integration reversed.

EXAMPLE 3.

Identify the region of integration for the following integral.

$$\int_0^1 \int_{\sin^{-1} y}^{\pi/2} f(x, y) dx dy.$$

Then, write down the integral with the order of integration reversed.

EXAMPLE 4.

Identify the region of integration for the following integral.

$$\int_0^1 \left(\int_0^{\sin^{-1} y} f(x, y) dx \right) dy.$$

Then, write down the integral with the order of integration reversed.

EXAMPLE 5.

Identify the region of integration for the following integral.

$$\int_3^4 \int_{x^2}^{x^3} (x^2 - y^3) dy dx.$$

Then, write down the integral with the order of integration reversed.