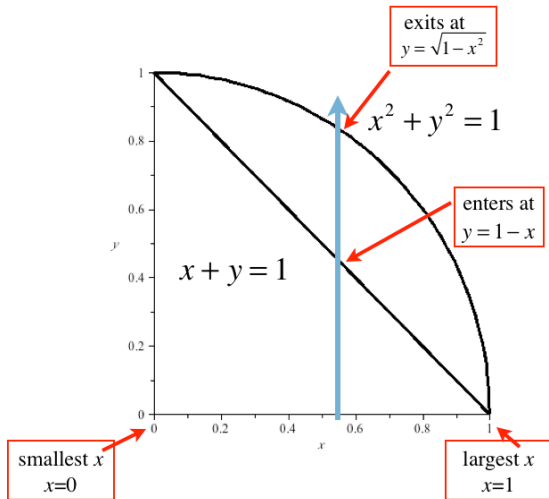


Math 213 - 11.3 Limits on Double Integrals

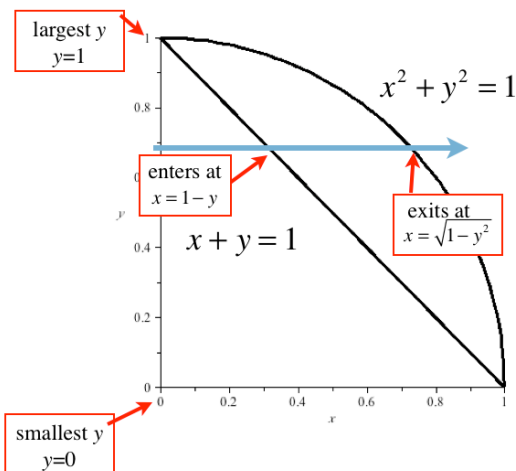
Suppose we wanted to find $\iint f(x,y) dA$ over the region bounded by the curves $x + y = 1$ and $x^2 + y^2 = 1$.

Suppose we wanted to integrate first with respect to y and then with respect to x .



$$\int_{x=0}^{x=1} \int_{y=1-x}^{y=\sqrt{1-x^2}} f(x,y) dy dx$$

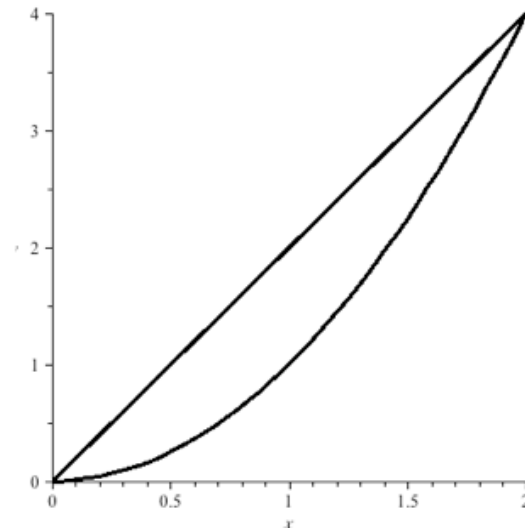
Suppose we wanted to integrate first with respect to x and then with respect to y .



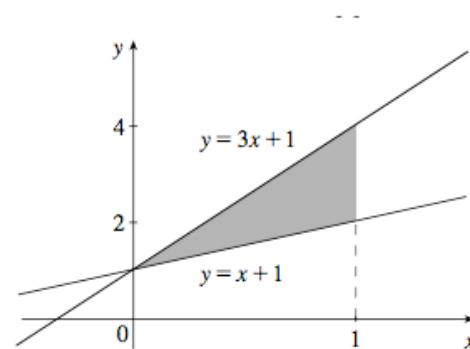
$$\int_{y=0}^{y=1} \int_{x=1-y}^{x=\sqrt{1-y^2}} f(x,y) dx dy$$

Order Matters!

Compute $\iint (4x+2) dA$

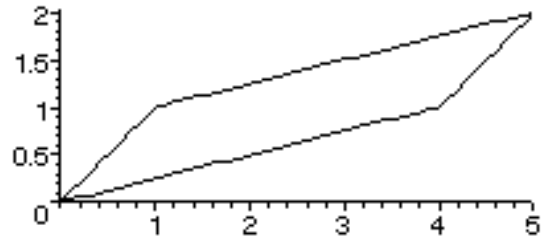


Compute $\iint e^{x^2} dA$



Fill in the required limit of integration for each of the following double integrals $\iint_R f(x,y)dA$, where R is the region indicated in the accompanying sketch.

1. $\int_0^1 \int_{[?]}^{4y} f(x,y) dx dy + \int_1^2 \int_{[?]}^{[?]} f(x,y) dx dy$



2. $\int_0^3 \int_{[?]}^{[?]} f(x,y) dy dx + \int_3^5 \int_{[?]}^{[?]} f(x,y) dy dx$

