Aalto university
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Demonstration exercises 1, done during class Thursday 4.3.2021 or Friday 5.3.2021.
Differential and integral calculus 3, MS-A0311.

The solutions will be presented by the assistant during class.

(1) Assume that $a > 0$ and $b > 0$. Calculate

$$\iint_D x - 3y \, dA$$

where D is the triangle with vertices $(0, 0)$, $(a, 0)$, and $(0, b)$.

(2) Calculate

$$\iint_D \frac{x}{1+y} \, dA$$

where D is the finite region in the first quadrant bounded by the coordinate axes and the curve $y = 1 - x^2$.

(3) Calculate the iterated integral

$$\int_0^{\pi/2} \left(\int_y^{\pi/2} \frac{\sin x}{x} \, dx \right) \, dy$$

and sketch the domain of integration. (*Hint:* It might be helpful to change the order of integration.)