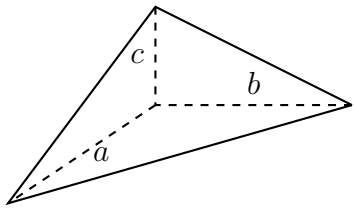
Calc III: Workshop 6, Fall 2017

Problem 1. Compute the integral of $f(x, y) = x \cos y$ over the region in the xy-plane bounded by $y = 0$, $y = x^2$, and $x = 1$.

Problem 2. By setting up an appropriate double integral, find the area of the bounded region between the curves $x = y^2$ and $y = x^2$.

Problem 3. Prove that the volume of a tetrahedron with mututally perpindicular adjacent sides of length a, b, and c is $\frac{abc}{6}$.



Problem 4. Given an integral of the form

$$\int_0^2 \int_0^{-x^2+2x} f(x, y)\, dy\, dx,$$

change the order of integration from $dy\, dx$ to $dx\, dy$ and find the new limits.

Problem 5. Compute the double integral

$$\int_0^4 \int_{x/2}^2 e^{y^2}, dy\, dx.$$