1. Find the volume of the solid which lies under the graph of the function \( f(x, y) = x^2 + y^2 \) and above the region in the \( xy \) plane bounded by \( y = 2x \) and \( y = x^2 \), by making slices \( x = (\text{const}) \).

2. Now find the volume again, this time making slices \( y = (\text{const}) \).
3. Find the volume of the solid above the region in the plane bounded by the parabola $y^2 = 2x + 6$ and the line $y = x - 1$, and below the graph of the function $f(x, y) = xy$. You should choose which way to slice based on what will make your life easier. I have sketched the curves for your convenience.