1. Find the volume below the surface $z=1+x+y$ and above the region $R$ in the $x y$-plane bounded by the graphs $x=1, y=0, y=x^{2}$.
2. Find the volume below the surface $z=e^{-x^{2}}$ and above the triangle $R$ in the $x y$-plane bounded by the $x$-axis, the line $x=1$, and the line $y=x$.
3. Evaluate $\int_{0}^{\pi} \int_{x}^{\pi} \frac{\sin (y)}{y} d y d x$ by reversing the order of integration.
