1. Find the volume below the surface $z = 1 + x + y$ and above the region R in the xy-plane bounded by the graphs $x = 1, y = 0, y = x^2$.

2. Find the volume below the surface $z = \cos(x^2)$ and above the triangle R in the xy-plane bounded by the x-axis, the line $x = 1$, and the line $y = x$.

3. Evaluate $\int_0^{\pi} \int_x^{\pi} \frac{\sin(y)}{y}\, dy\, dx$ by reversing the order of integration.

4. Find the volume of the solid that lies under the paraboloid $z = x^2 + y^2$ and above the region R in the xy-plane bounded by $y = 2x$ and $y = x^2$.

5. Evaluate $\iint_R 2x - y\, dA$ where R is the upper half of the circle with center at the origin and radius 2.