4.4

1. Find the area of the surface.

The part of the plane $3x + 2y + z = 6$ that lies in the first octant.

The part of the plane with vector equation $\mathbf{r}(u, v) = \langle u + v, 2 - 3u, 1 + u - v \rangle$ that is given by $0 \le u \le 2$, $-1 \le v \le 1$.

2. $\iint_S xyz \, dS$, S is the cone with parametric equations $x = u \cos v$, $y = u \sin v$, $z = u$, $0 \le u \le 1$, $0 \le v \le \pi$.

3. Use Stokes's Theorem to evaluate $\int_C \mathbf{F} \cdot d\mathbf{r}$. $\mathbf{F}(x, y, z) = xy\mathbf{i} + yz\mathbf{j} + zx\mathbf{k}$, C is the boundary of the part of the paraboloid $z = 1 - x^2 - y^2$ in the first octant.