p. 1174 (14.7)

Verify the Divergence Theorem by computing both integrals.

5. $\vec{F} = \langle 2xz, y^2, -xz \rangle$, Q is the cube $0 \le x \le 1,\ 0 \le y \le 1,\ 0 \le z \le 1$

Use the Divergence Theorem to compute $\iint_{\partial Q} \vec{F} \cdot \vec{n}\, dS$.

9. Q is bounded by $x + y + 2z = 2$ (first octant) and the coordinate planes, $\vec{F} = \langle 2x - y^2, 4xz - 2y, xy^3 \rangle$.

11. Q is the cube $-1 \le x \le 1,\ -1 \le y \le 1,\ -1 \le z \le 1$, $\vec{F} = \langle 4y^2, 3z - \cos x, z^3 - x \rangle$.

13. Q is bounded by $z = x^2 + y^2$ and $z = 4$, $\vec{F} = \langle x^3, y^3 - z, xy^2 \rangle$.

15. Q is bounded by $z = \sqrt{x^2 + y^2}$ and $z = 4$, $\vec{F} = \langle y^3, x + z^2, z + y^2 \rangle$.

Find the flux of $\vec{F}$ **over** ∂Q.

21. Q is bounded by $z = \sqrt{x^2 + y^2}$ and $z = \sqrt{2 - x^2 - y^2}$, $\vec{F} = \langle x^2, z^2 - x, y^3 \rangle$.

23. Q is bounded by $z = \sqrt{x^2 + y^2}$, $x^2 + y^2 = 1$ and $z = 0$, $\vec{F} = \langle y^2, x^2 z, z^2 \rangle$.

25. Q is bounded by $x^2 + y^2 = 1$, $y = 0$ and $y = 1$, $\vec{F} = \langle z - y^3, 2y - \sin z, x^2 - z \rangle$.

27. Q is bounded by $x = y^2 + z^2$ and $x = 4$, $\vec{F} = \langle x^3, y^3 - z, z^3 - y^2 \rangle$.