Midterm II Topics.

1. Finding potentials for gradient fields.
   Problem 15, page 399. Find a potential function for the field $\mathbf{F}$.

2. Green’s theorem.
   Problem 22, page 402.

3. Simply connected regions.
   Problem 35, page 403

4. Flux and Green’s theorem in normal form.
   Problem 37, page 404.

5. Triple integrals.
   Problem 20, page 356; Problem 19 (a), page 356.

   (i) Compute the gravitational attraction on a unit mass particle placed at the origin from the solid with density $\delta = z$ contained below the plane $z = 1$ and above the right circular cone $z^2 = x^2 + y^2$.
   (ii) A spherical shell of mass $m$ is bounded by the spheres of radii $a$ and $2a$. Find its moment of inertia around a diameter assuming that $\delta = \rho^2$.

7. Surface area in cylindrical and spherical coordinates. General surface area.

8. The divergence theorem.
   Page 453, problem 8.