Test 2: All Unit 2 notes and posted Unit 2 slides

Basic sing. var. calc. and test 1 knowledge

- $\sin(\pi/3)$, $\cos(\pi/3)$, e^0, $\ln 1$, ...
- Integration of basic functions (x^n, e^x, $\sin x$, $\cos x$, ...); Integration using "substitution"; Recognize hard/impossible integrals.
- Sketching of surfaces: Plane; Cylinder; Quadric surface (all including shifts).
- Sketching of curves: Line; Ellipse; Parabola; Hyperbola; ....
- Equation of a line; Equation of a plane.

Sec. 15.1-4: Double integrals

- Approximation of double integrals: double (Riemann) sums and midpoint rule.
- Evaluation of double integrals: rectangular and polar coordinates.
- Set up of double integrals: rectangular and polar coordinates.
- Changing order of integration; Changing rectangular to polar integrals and vice versa.
- Definition of polar coordinates (x, y, $\mathrm{d}A$); Definition of r, θ in polar coordinates.
- Recognize easiest setup or evaluation (change order of integration, change to polar coordinates).
- Applications: Area; Average value; Volume; Mass and center of mass of a lamina.

Sec. 15.6-8: Triple integrals

- Evaluation of triple integrals: rectangular, cylindrical, spherical coordinates.
- Set up of triple integrals: rectangular, cylindrical, spherical coordinates.
- Changing order of integration; Changing rectangular to cylindrical or spherical integrals and vice versa.
- Defintion of cylindrical and spherical coordinates (x, y, z, $\mathrm{d}V$); Definition of r, θ, z in cylindrical coordinates; Definition of ρ, ϕ, θ in spherical coordinates.
- Recognize easiest setup or evaluation (change order of integration, change to cylindrical or spherical coordinates).
- Applications: Average value; Volume; Mass and center of mass of a solid.

What NOT to know? Things that I didn't discuss during class.

- Sec. 15.2: Definition of type I and type II regions.
- Sec. 15.4: Electric charge; Moments; Moments of inertia; Probability; Expected values.
- Sec. 15.5.
- Sec. 15.6: Definition of type 1, 2, 3 regions; Moments; Moments of inertia; Electric charge; Probability