

- (1) From Section 16.6: 6, 12, 34, 38.
(In 5th Ed, Section 16.7: 6, 10, 32, 36.)
- (2) Section 16.7: 20
(5th Ed: Problem 10 in Section 16.8.)
- (3) Section 16.8: 20 and 26
(5th Ed: Problems 6 and 22 in Section 16.8.)
- (4) Let T be the torus given in spherical polar coordinates by the equation $\rho \leq \sin \phi$.
 - (a) Draw the intersection of the torus with the plane $y = 0$. (I want a two dimensional sketch on axes marked 'x' and 'z'.)
 - (b) Calculate the volume of the torus.
- (5) Consider the region inside the cone $x^2 + y^2 \leq z^2$ with $z \geq 0$ and below the plane $z = 1 - \frac{1}{2}y$.
 - (a) Write the integral of $f(x, y, z)$ over this region in spherical coordinates.
 - (b) Repeat part (a) with cylindrical coordinates.
- (6) Compute the location of the center of mass of half of a solid sphere.

Note: The first mid-term covers the material up to and including "Triple Integrals in Spherical Coordinates". See

<http://www.math.ucla.edu/~killip/32b/>
for the order of topics.