MATH 2043 EXAM 2 REVIEW
FOR DISRIBUTION

TEXT: Hass, Weir, Thomas, *University Calculus*, Pearson Education, Inc., 2007

SECTION 12.4: 5, 10, 12
SECTION 12.5: 6, 11, 18, 21
SECTION 12.6: 3, 6, 7 , 8
SECTION 12.7: 12, 20, 21, 23 ,25, 29, 30
SECTION 12.8: 3, 4, 5, 10, 11, 17 (Also in problem 17 show that if $P_0(X_0, Y_0, Z_0)$ is the point found and Q is the point $Q(1, 1, 1)$, then $\overrightarrow{P_0Q}$ is normal to the plane $x + 2y + 3z = 13$
SECTION 13.1: 7, 9, 10, 15, 19, 20
SECTION 13.2: 5, 6, 21, 25, 27, 28, 31
SECTION 13.3: 3, 5, 7, 8
SECTION 13.4: 9, 10 11, 13, 15, 37 , 39
SECTION 13.5: 5 (evaluate one way), 9, 11, 17, 27, 28 , 30, 32
SECTION 13.7: 4, 5, 8, 11 (a& b), 31, 37, 53
Convert to cylindrical coordiates and evaluate
1. $\int_{-2}^{2}\int_{0}^{\sqrt{4-x^2}}\int_{0}^{\sqrt{4-x^2-y^2}} z\sqrt{x^2+y^2+z^2}$ dzdydx
2. $\int_{-2}^{0}\int_{-\sqrt{4-x^2}}^{0}\int_{-\sqrt{4-x^2-y^2}}^{\sqrt{4-x^2-y^2}} z\sqrt{x^2+y^2+z^2}$ dzdydx
3. Evaluate $\int\int\int_{\mathbf{D}} e^{-(x^2+y^2+z^2)^{3/2}} dV$ where $\mathbf{D}$ is the region that lies below the sphere $x^2 + y^2 + z^2 = 4$ and above $z = \sqrt{x^2 + y^2}$.
Review Exercises Chapter 13 — 17, 18, 19, 20, 31
Also, Set up integrals in rectangular, cylindrical and spherical coordinates to find the volume of the region bounded below by the cone $z = \sqrt{x^2 + y^2}$ and above by the sphere $x^2 + y^2 + z^2 = 8$ and evaluate one of the three integrals.