Review 3 Math 261

Any term in **bold face** know the definition or statement of the Theorem well enough to state it on the test. The definition you give should be similar to the one in the book or have similar detail.

Section 15.1-15.2 Be able to compute double integrals over rectangles

Sample problems : example 3, pg 994 exercises # 7, 9

Section 15.3 Be able to compute double integrals over general regions finding limits of integration is key

Sample problems : example 1, exercises 11,15

Section 15.5 Be able to find the **center of mass** for a plate. **formula for finding center of mass of a plate**, **joint density function**, **expected values**

Sample problems : example 2, exercise 7, 24

Section 15.6 Be able to find surface area **know the formula for finding surface area**

Sample problems : example 2, exercise 3, 9,10

Section 15.7 Be able to compute triple integrals, Be able to Set up the integrals for finding the center of mass for a volume.

Sample problems : example 5, exercise 7,17

Section 15.4/15.8/15.9 **Jacobian**, Be able to compute Jacobians and use them to do a change of variables for a function of two or three variables especially for **polar and cylindrical coordinates**

Sample problems : **15.9** example 3, exercise 2,9,13 **15.4** example 3,exercise 21 **15.8** exercise 9,11,12,17,19

Section 16.1 **Vector Field**, Be able to draw vector fields in $\mathbb{R}^2$, gradient as vector field

Sample problems : example 1 exercise 2,3,25

Section 16.2 Line integrals, $\int_C f(x,y)ds$, $\int_C f(x,y)dx$ $\int_C f(x,y)dy$ $\int P(x,y)dx + Q(x,y)dy$,

Sample problems : 5,7,9,19