Review 2 Math 261

Any term in **bold face** know the definition well enough to state it on the test.

Section 14.1 Terms: **function of several variables**, **level curves** , domain, range,

be able to find domains and level curves **Sample problems :** exercises # 13,18, 46

Section 14.2 Terms: **limit of f(x,y) as (x,y) approaches (a,b)** , **continuous at (a,b)**(in terms of limits)

be able to evaluate limits along different paths. show limits exist or don't exist, show a functions is continuous **Sample problems :** Example 3, exercises # 9, 29

Section 14.3 Terms: **partial derivatives** (in terms of limits), **Higher order Derivatives**

know notations for partial derivatives, how to compute partials, **Sample problems :** exercises 4, 21, 33,59, 76

Section 14.4 Terms: **tangent plane**, **linearization**, **differential** dz

know how to: find tangents planes, approximate with tangent planes, compute dz **Sample problems :** example 2, exercises # 11, 27, 35

Section 14.5 Terms: **chain rules**, **implicit function theorems**

be able to apply the chain rules to find partials and derivatives **Sample problems :** examples 3, 5,8 proof of implicit function theorem, exercises # 21, 27,

Section 14.6 Terms: **directional derivative** , **gradient**, **tangent plane to level surface**

be able to: compute gradients and directional derivatives in different ways, apply properties of gradient **Sample problems :** example 6, proof of Theorem 15, exercises #11, 23,41

Section 14.7 Terms: **local max/min**,**critical points**, **second derivative test**

be able to: find critical points and apply the second derivative test, Theorem 8. **Sample problems :** examples 3, 6,7 exercises # 9,34,40

Section 14.8 **Method of Lagrange Muliplier**, be able to set up a system of equations for lagrange multipliers and be able to solve simple systems of equations **Sample problems :** examples 2,3, exercises # 3,5

Section 15.1-15.2 **Double integral over a rectangle**, Fubini's Theorem

15.1 Example 3, 15.2 exercises # 4,5,18