Multivariable Calculus

Worksheet 12

TITLE Review for Exam 1
CURRENT READING McCallum, Section Chapter 12, Chapter 13, Section 14.1-14.5, 17.1
HW #6 (DUE WEDNESDAY 03/0615)
McCallum, *Section 14.6*: 4, 11, 12, 26, 34, 35, 47*.
McCallum, *Section 14.7*: 6, 7, 8, 12, 19, 24, 30, 31,41*.
McCallum, *Section 14.8*: 3, 12, 19*.
McCallum, *Chapter 14*: 2, 14, 35, 45, 64*

SUMMARY
This worksheet reviews the concepts that you need to be responsible for on Exam #1.

Here are the titles of the first 11 Worksheets of the class.
* means Exam 1 will not cover this material

Worksheet 1 *Introduction to Vectors (Notation and Terminology)*

Worksheet 2 *The Dot Product and Vector Equations of Lines and Planes*

Worksheet 3 *Vector Projection and the Vector Cross Product*

Worksheet 4 *Functions, Vector Functions, and $f(x, y)$ as surfaces*

Worksheet 5 *Cross-Sections and Level Sets*

Worksheet 6 *Limits of Multivariable Functions*

Worksheet 7 *The Partial Derivative*

Worksheet 8 *The Tangent Plane, Differentials, and Linear Approximations*

Worksheet 9 *The Directional Derivative and the Gradient Vector*

Worksheet 10 *The Gradient Vector in $\mathbb{R}^3$*

Worksheet 11 *The Chain Rule**

Here are the in-class activities covered

Surface Activity 1 The Surface (Functions of Two Variables)

Surface Activity 2 The Park (Level Sets)

Supplemental Activity Matching Contours and Surfaces

Here are the titles of the Quizzes we have done so far in the class

Quiz 1 *Vectors and Lines in $\mathbb{R}^4$*

Quiz 2 *Planes and the Cross Product*

Quiz 3 *Visualizing Multivariable Functions: Using Slices*

Quiz 4 *Application of Partial Derivatives: Tangent Plane*

BONUS 1 *Application of Projections: Distance Between Planes*

Quiz 5 *Gradient Vector and the Directional Derivative*

Here are the Chapters we have covered in the textbook, *Calculus : Multivariable (6th Edition)*, so far
* means Exam 1 will not cover this material

Section 12.1 *Functions of Two Variables*

Section 12.2 *Graphs and Surfaces*

Section 12.3 *Contour Diagrams*

Section 12.4 *Linear Functions*

Section 12.5 *Functions of Three Variables*

Section 12.6 *Limits and Continuity*

Section 13.1 *Displacement Vectors*

Section 13.2 *Vectors in General*

Section 13.3 *The Dot Product*

Section 13.4 *The Cross Product*

Section 14.1 *The Partial Derivative*

Section 14.2 *Computing Partial Derivatives Algebraically*

Section 14.3 *Local Linearity and the Differential*

Section 14.4 *Gradients and Directional Derivatives in the Plane*

Section 14.5 *Gradients and Directional Derivatives in Space*

Section 14.6 *The Chain Rule**

GROUPWORK
What topic(s) are the most unclear right now?

Which topic(s) do you have the most confidence in answering questions on?