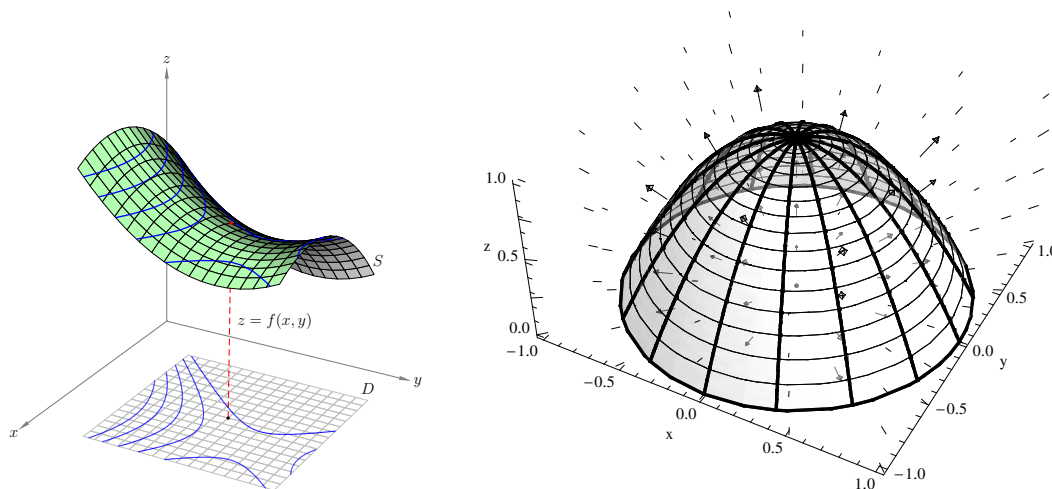


Welcome to Math 280, Intermediate Calculus!

Intermediate Calculus extends the journey you began in first- and second-semester calculus into the third dimension. We will be learning about functions that describe surfaces in space, and using the tools of calculus to analyze and understand their properties.



You'll receive a syllabus on the first day of class, detailing what is expected of you during the semester, and how your grade is assigned. For now, I want you to know that we will be using the same textbook that we used for Math 180 and Math 185:

Stewart, James. *Calculus, Early Transcendentals*, 6e. ISBN 978-0-495-01166-8

Because we only meet for 4 hours each week (and we have the Cesar Chavez holiday on March 29) we will be a little cramped for time. The material at the end of the course is entirely new, and I'd like to make certain that we have enough time to understand the meaning, symbolism, and fascinating applications of vector calculus.

To this end, I would like for you to complete the following BEFORE you come to the first class meeting on Tuesday, January 24.

1. Read Sec. 12.1.
 - (a) Recognize the right-hand rule for rectangular coordinate systems.
 - (b) Locate points in three-dimensional space (denoted \mathbb{R}^3) using rectangular coordinates.
 - (c) Sketch the graphs of planes in \mathbb{R}^3 . Example 1 and Figure 7 on page 766 will be very helpful.
 - (d) Know and apply the distance formula for \mathbb{R}^3 .
 - (e) Know and apply the equation of a sphere in \mathbb{R}^3
2. Do Sec. 12.1 #1, 3-6, 8, 11-13, 15, 17, 18, 25, 27, 29, 30
3. Read Sec. 12.2. (If you've ever taken physics, this will be very familiar. If you haven't taken physics, then you must become very familiar with this section. Don't be afraid to read it a number of times, or to search on the internet for other explanations if you don't fully understand the reading.)
 - (a) Know and apply the Parallelogram Law for vector addition.
 - (b) Know and apply scalar multiplication for vectors.
 - (c) Know and apply the geometric interpretation of vector subtraction. (Geometric vector subtraction is covered from the bottom of page 771 through the middle of page 772. This turns out to be an EXTREMELY important idea throughout the rest of the course.)
 - (d) Know how to represent a vector in component form and in standard basis vector form.
4. Do Sec. 12.2 #1, 2, 4, 5, 7, 9, 11, 14, 19, 20, 22, 23, 24-26, 28, 29, 30, 32, 33

I expect you to complete this assignment to the best of your ability *before* the first class meeting. Use all the resources that are available to a student in the 21st century: working with friends, emailing the professor, studying solutions in the student solution book, checking for additional resources online, etc.

During the first class meeting, we will do a number of applications of vector algebra, similar to those at the end of Sec. 12.2, and then we will move on to Sec. 12.3.

I look forward to meeting you all on Tuesday, January 24, 2011, and to a great semester at Santiago Canyon College.

Sincerely,

A handwritten signature in black ink, appearing to read "Randy Scott". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

Randy Scott

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