

# Reading Assignment # 20

Math 13 - Prof. Orellana

May 26, 2010

Read Sections 7.2 - Make sure you understand what it is meant by an oriented surface.

Don't forget to let me know the pages where you found the answers. You should write full sentences when you do these assignments to help you study from them before the next exam.

1. What is the definition of the scalar surface integral? Compare this definition to the one for the scalar line integral.
2. Read the paragraphs after the definition 2.1 and tell me what physical interpretation can be given to the scalar surface integral.
3. Define the vector surface integral.
4. Show how to write the vector surface integral as a scalar vector integral.
5. What is the name of the vector line integral when  $\mathbf{x}$  is a closed curve? What is the name of the vector surface integral? What is the physical interpretation of the vector surface integral?
6. How is a reparametrization defined? What does it mean for a reparametrization to be orientation preserving or orientation reversing?
7. What does Theorem 2.4 say? What does Theorem 2.5 say? Compare these two Theorems and in your own words summarize what they say.
8. Define orientable. How many orientations are possible given a smooth surface? What is the point of Example 8?
9. Study Figure 7.26 and explain what it illustrates.
10. Read the paragraph before Figure 7.28 and explain how to figure out the orientations in Figure 7.28. Explain what the Figure illustrates.