Reading Assignment # 8

Math 9 - Prof. Orellana

Oct. 15, 2007

Read Section 12.3 and then answer the following questions. It is very important that you read the whole section, even the parts that you think you already understand.

1. For what series are we able to find exactly the sum according to Section 12.3?

2. What is the aim of Section 12.3?

3. Explain Figure 1 and describe how we could use integrals to find the sum of an infinite series.

4. How do we prove that $\sum_{n=1}^{\infty} \frac{1}{n^2}$ is convergent in your book? What is the sum of this series, who found this sum?

5. Is $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n}}$ convergent or divergent? How does your book use integrals to find this answer?

6. State the integral test and read its proof. Give an outline of the main steps in the proof.

7. What is the note after the integral test saying?

8. What does your book mean by the p-series? What do we know about its convergence?

9. What does the note after example 3 say?

10. What does the Remainder Estimate for the Integral Test say? In your own words, summarize the content of the subsection "Estimating the sum of a series".