Brief solutions to selected problems in homework 03

1. Section 10.6: Solutions, common mistakes and corrections:

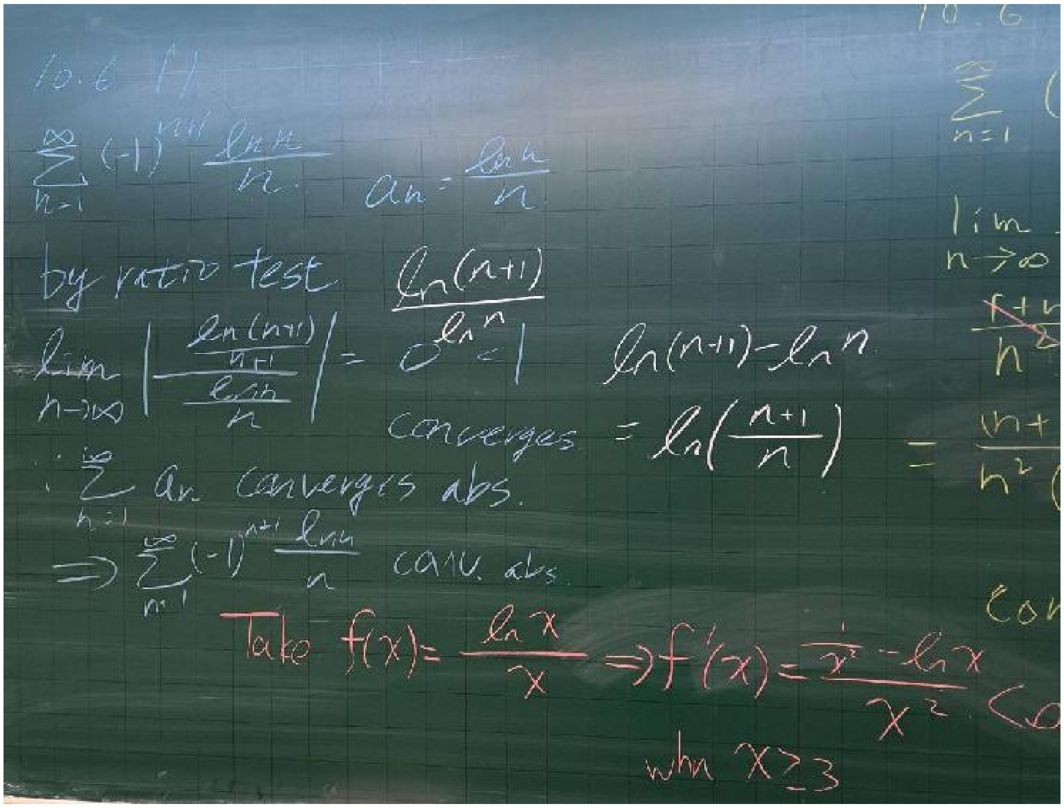

Figure 1: Section 10.6, problem 11

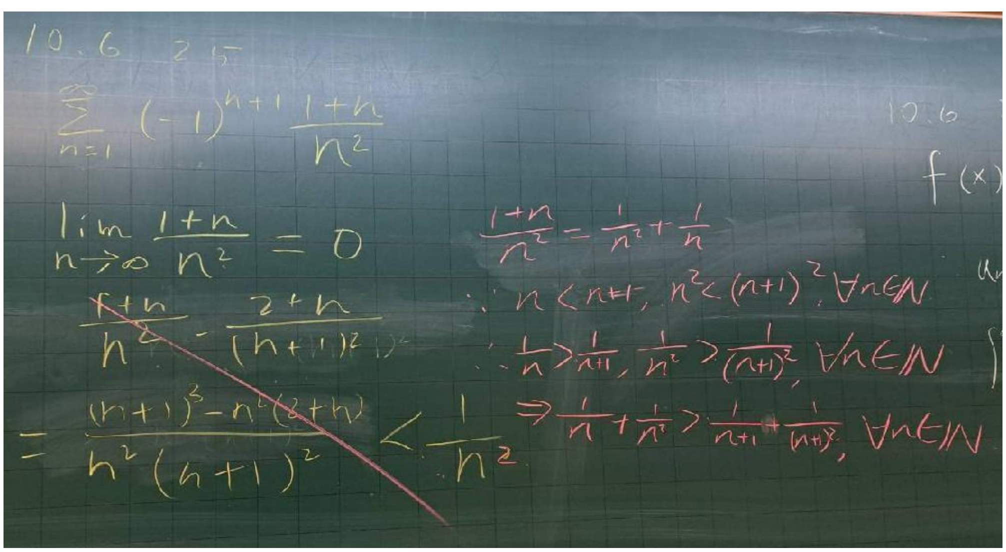

Figure 2: Section 10.6, problem 25. Method 2: Use Limit Comparison Test to compare $|a_n|$ with $\dfrac{1}{n}$

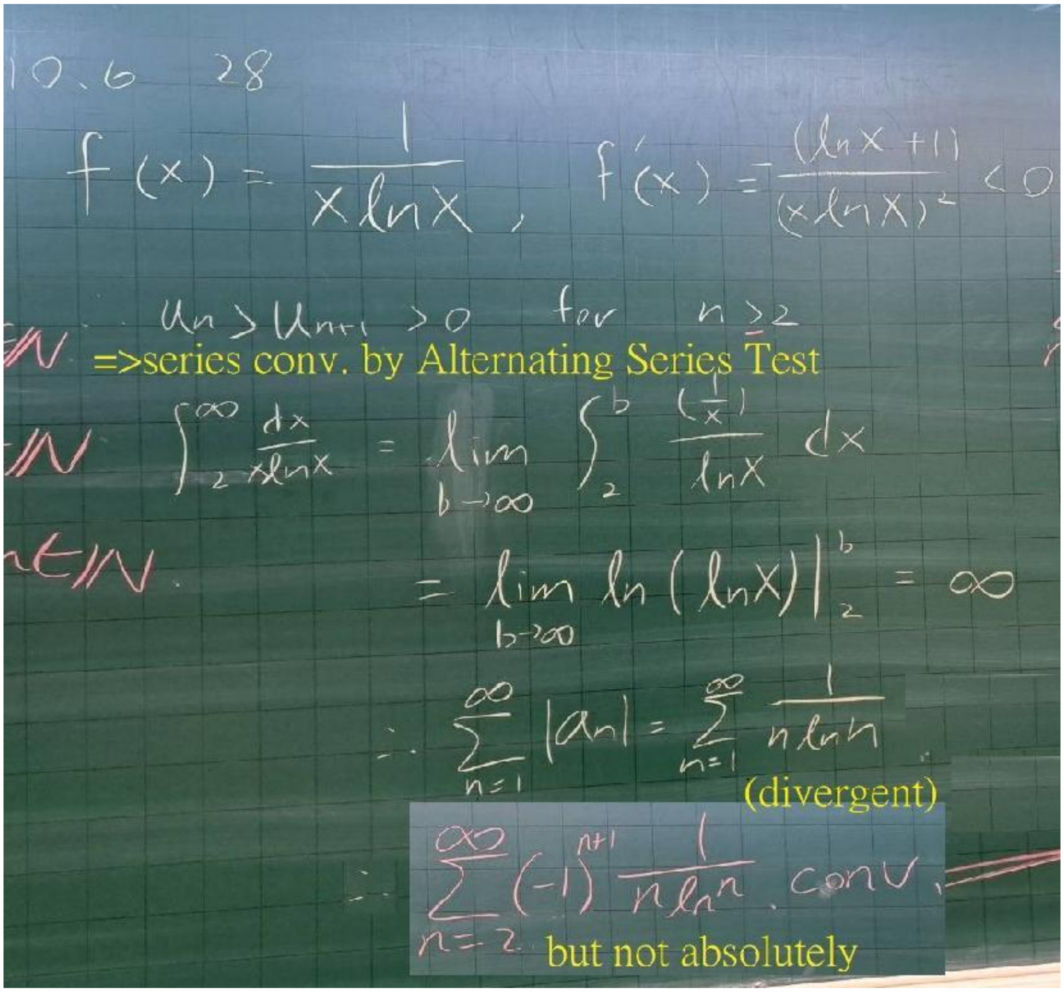

Figure 3: Section 10.6, problem 28

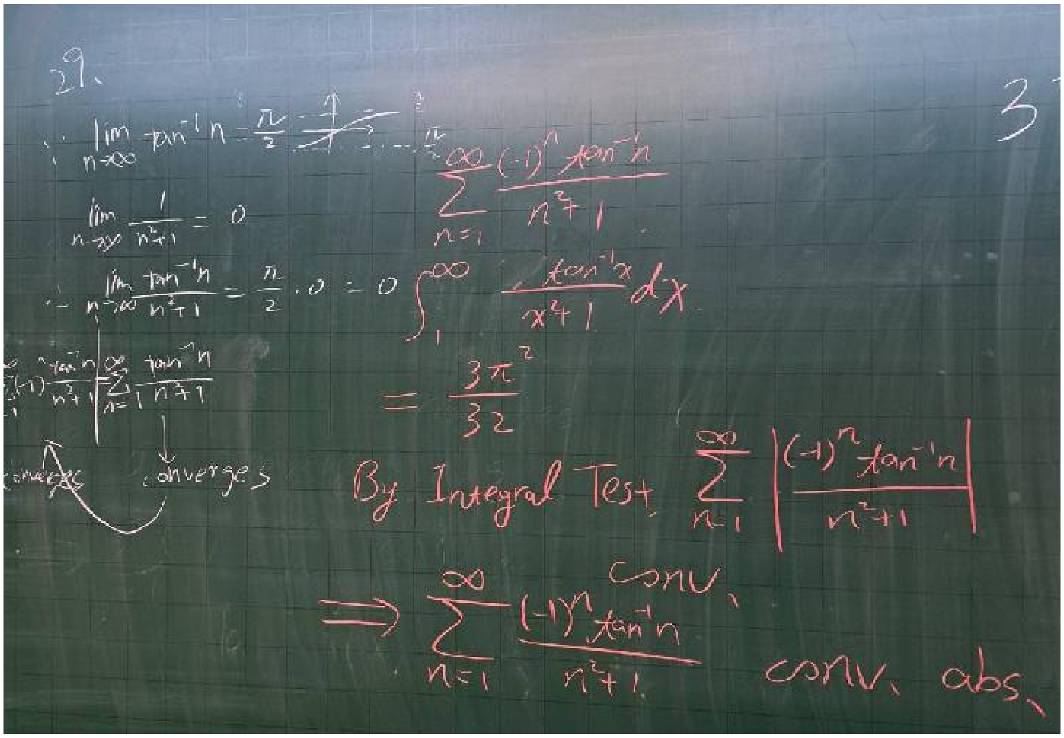

Figure 4: Section 10.6, problem 29. Remark: $\int_{x=1}^{\infty} \frac{\tan^{-1} x}{1+x^2} dx = \int_{y=\frac{\pi}{4}}^{\frac{\pi}{2}} y dy$

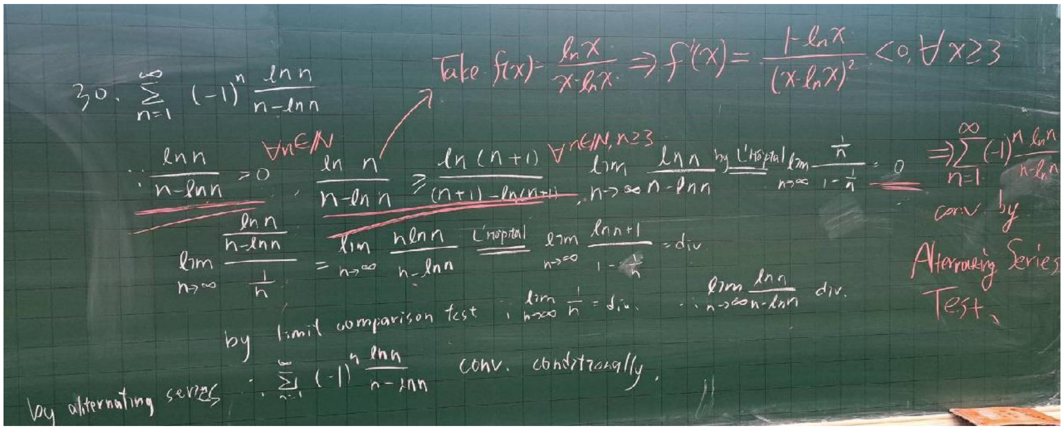

Figure 5: Section 10.6, problem 30

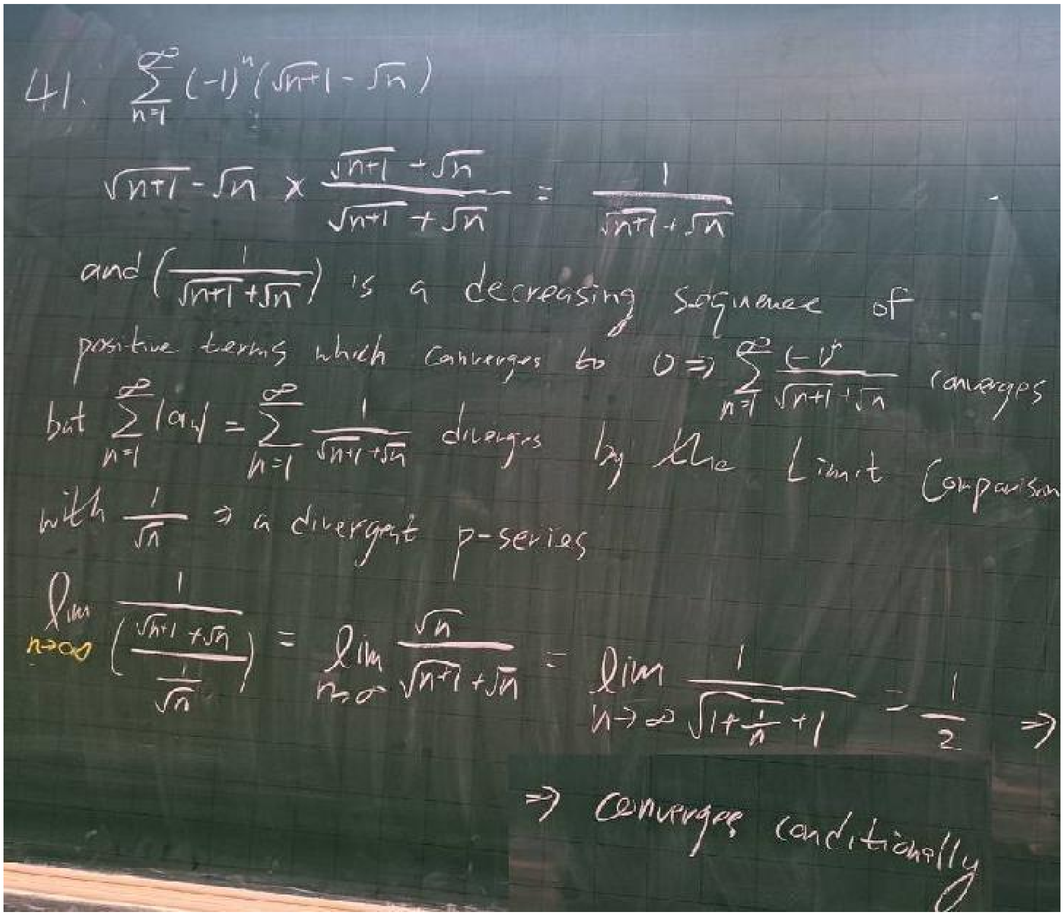

Figure 6: Section 10.6, problem 41

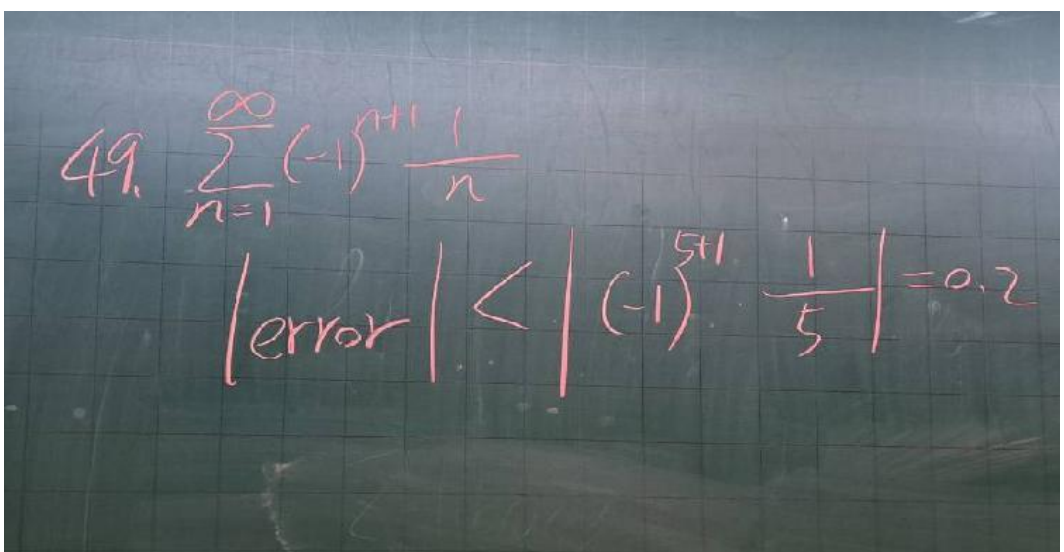

Figure 7: Section 10.6, problem 49

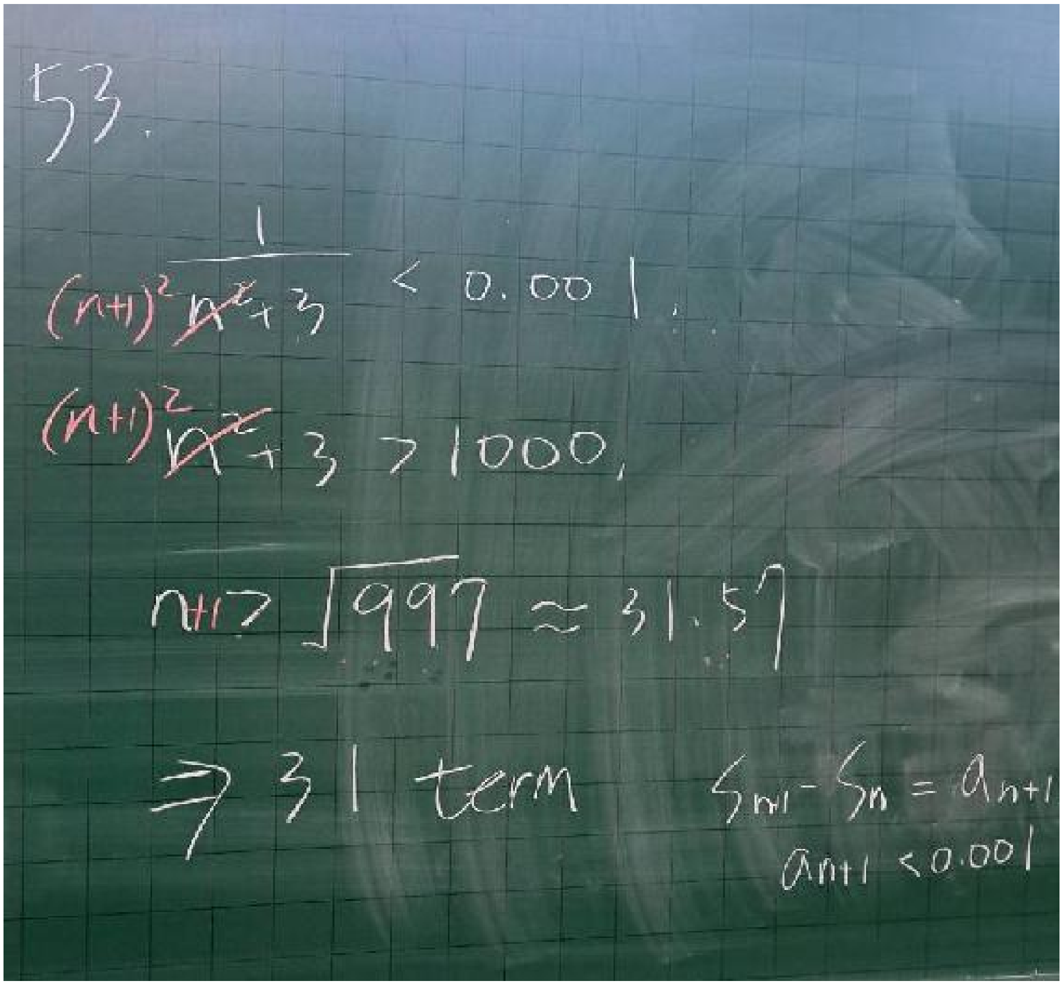

Figure 8: Section 10.6, problem 53. Note: the last few lines should read "$|S_n - S| < |a_{n+1}| < 0.001$" instead.

2. Section 10.7: Solutions, common mistakes and corrections:

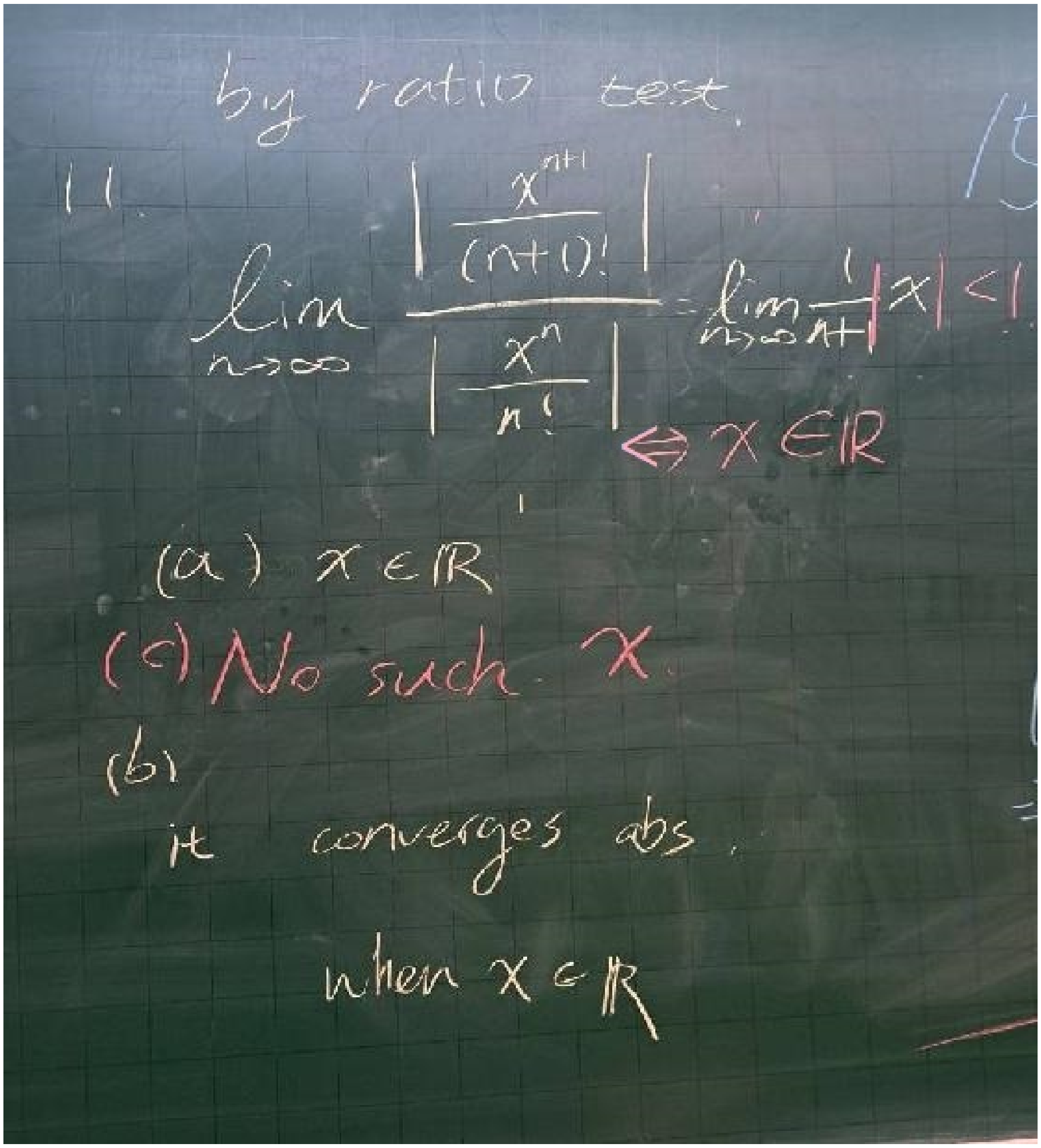

Figure 9: Section 10.7, problem 11

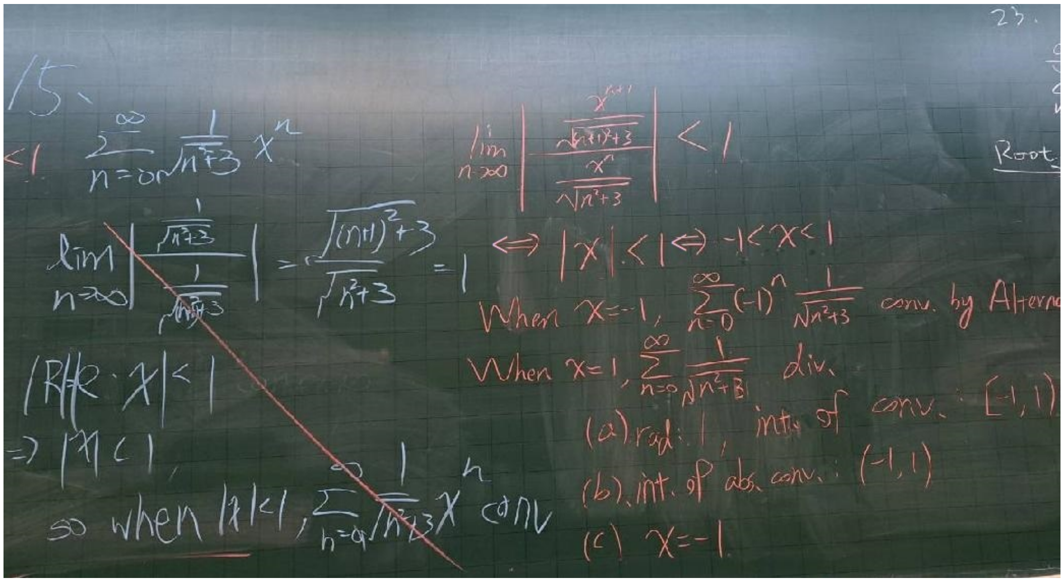

Figure 10: Section 10.7, problem 15

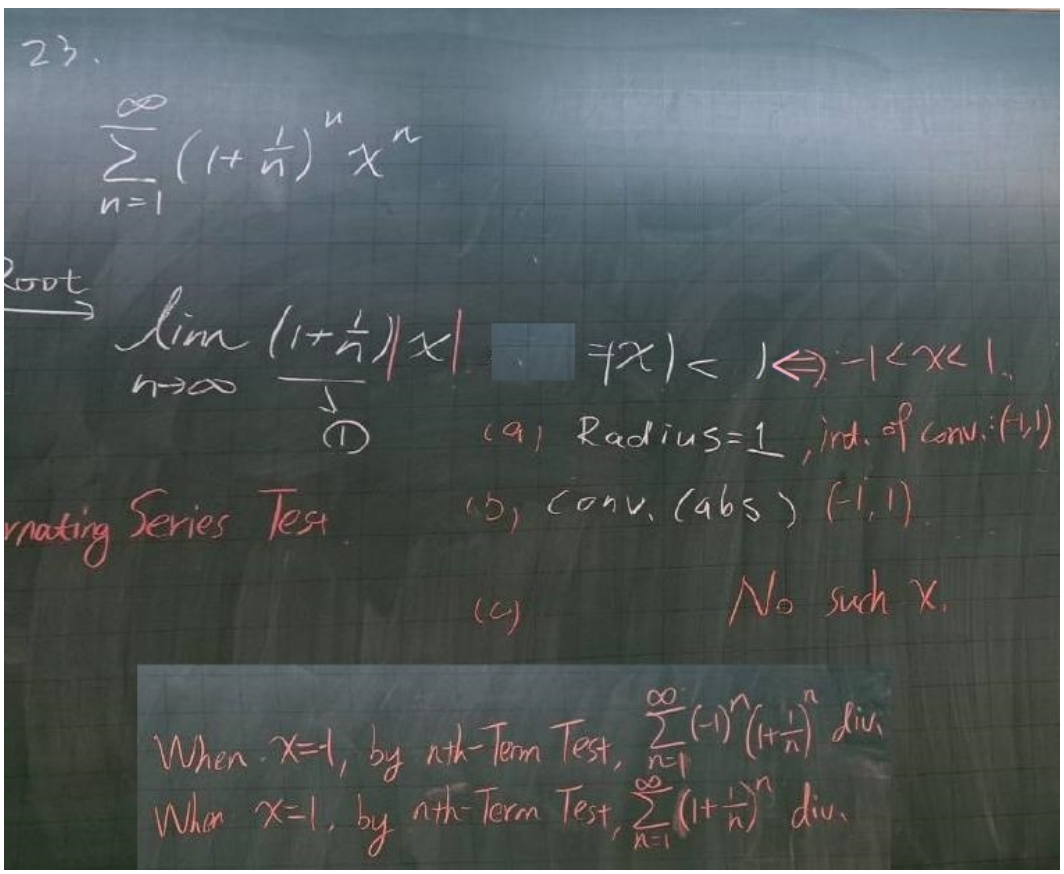

Figure 11: Section 10.7, problem 23

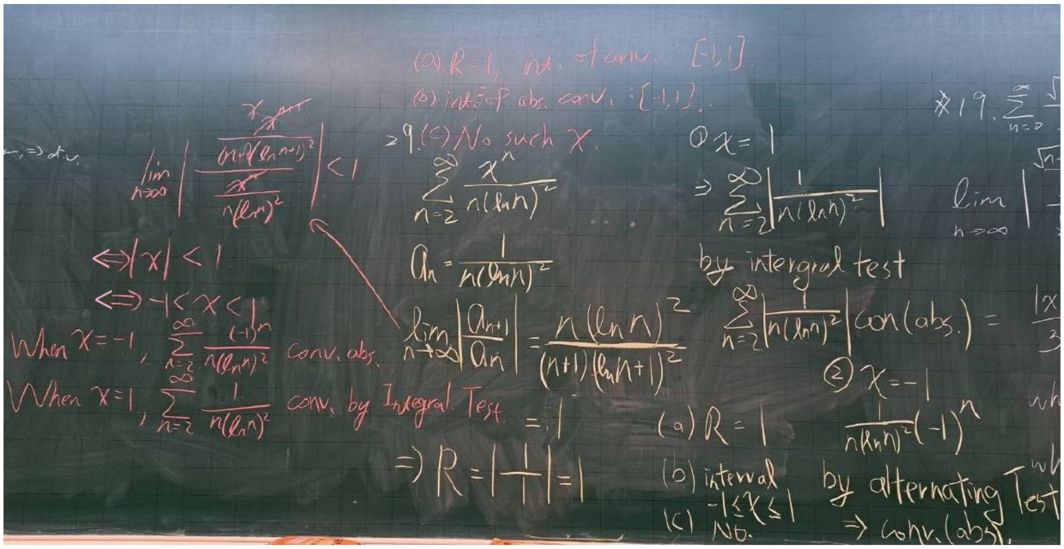

Figure 12: Section 10.7, problem 29

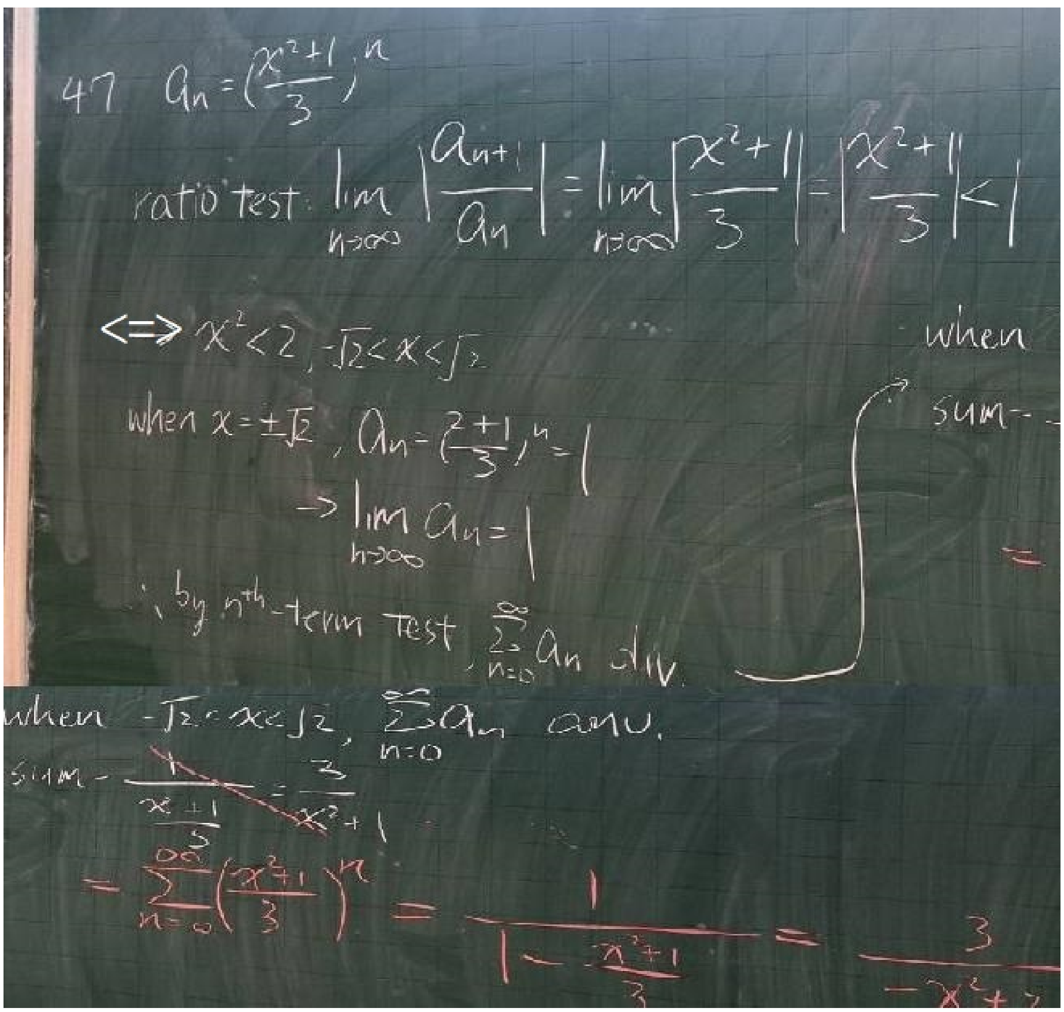

Figure 13: Section 10.7, problem 47