

HW 4-7 cont'd

- ③ Consider two sequences $\alpha_j, \beta_j \in \mathbb{R}, j=1, 2, \dots$ such that $\{j: \alpha_j \neq \beta_j\}$ is a finite set. If $\sum_1^{\infty} \alpha_j$ is convergent, prove that $\sum_1^{\infty} \beta_j$ is also convergent.

4-10

- ① Does the series $\sum_{k=1}^{\infty} \frac{2k-1}{k^2+1}$ converge? converge absolutely?
- ② Suppose $a_n \geq 0$ and $\sum_{n=1}^{\infty} a_n$ converges. Prove that $\sum_{n=1}^{\infty} a_n^2$ also converges.