Remark: ER 3.2.51, ER 3.2.52, ER 3.2.53 go together.

In ER 3.2.52 be careful not to make a mistake similar to the mistake in ER 3.2.51.

ER 3.2.53

§3.2
BS4p69-70

If Conjecture 1 is true, then prove Conjecture 1.

If Conjecture 2 is false, then provide a counterexample to Conjecture 1.

Conjecture 1. Let $\{x_n\}_{n=1}^{\infty}$ be a sequence. Let $\{a_n\}_{n=1}^{\infty}$ be the averages of the x_n's, i.e.,

$$a_n \;=\; \frac{x_1 + x_2 + \cdots + x_n}{n} \quad \text{for each} \quad n \in \mathbb{N}.$$

If the averages $\{a_n\}_{n=1}^{\infty}$ converge, then $\{x_n\}_{n=1}^{\infty}$ converge.

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