Oppgaver stk4090/9090 og errata til boken

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Exercises

week 1 Exercises 2.1–2.7

week 2 Exercises 2.9, 2.11, 2.12, 2.13, 2.15, 2.16, and 2.19(e) (see errata below for this last exercise)

Errata to partone_16jan2025.pdf

Ex. 2.3(e) REPLACE: $\Pr(Z_n = 0) = 1 - 1/(3n)$ with $\Pr(Z_n = 0) = 1 - 2/(3n)$.
Ex. 2.5(g) REPLACE $\mathrm{E}\,|X_n|^{1+\delta} < \infty$ for all n, with $\sup_n \mathrm{E}\,|X_n|^{1+\delta} < \infty$.
Ex. 2.5(h) REWRITE:: Show that $(X_n)_{n\geq 1}$ is uniformly integrable if and only if

$$\lim_{M\to\infty} \limsup_{n\to\infty} \mathrm{E}\,|X_n| I(|X_n| > M) = 0,$$

and X_n is integrable for all n.
Ex. 2.19(e) REWRITE: Finally, consider the setting where have c.d.f.'s $F_n(x) = P_n(-\infty, x]$ and $F(x) = P(-\infty, x]$. Show that for $P_n \Rightarrow P$ it is necessary and sufficient that $F_n \Rightarrow F$. To show the sufficiency part, express the open set $B \subset \mathbb{R}$ as a union of the disjoint open intervals $(a_1, b_1), (a_2, b_2), \ldots$, and deduce that $F_n \Rightarrow F$ implies (iii) of the Portmanteau theorem.
Ex. 2.22(a) REPLACE "whenever F is continuous" with "whenever F^{-1} exists".
Ex. 2.25(b) The equation should read $F(x) = \inf\{G(q) \colon q > x, q \in \mathbb{Q}\}$.