STAT 620 Homework 9

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(Alternative to 6.7) Does a continuous distribution function have to be uniformly continuous? If yes, prove, if no, give a counterexample.

Note: Problem 6.7 implies that if F is a continuous distribution function on $\mathbb{R}$, it must be uniformly conintinous

The notes define a distribution function to be a function $F : \mathbb{R}^n \to \mathbb{R}^n$ that is a monotone increasing, right-continuous function. If F is continuous, then it is both right-continuous and left-continuous at every point. A function that is uniformly continuous is one such that for any given $\varepsilon > 0$, there can be found a single $\delta > 0$ such that $|F(x) - F(x_0)| < \varepsilon$ whenever $|x - x_0| < \delta$, for all $x_0 \in \mathbb{R}$.