MAT141

due Wednesday, October 24

Recall that for a sequence $\{a_n\}$, we have $a_n \to L$ whenever the following holds:

For every $\epsilon > 0$, there exists K such that, we have $|a_n - L| < \epsilon$ for all $n > K$.

For each of the following variations of this definition, give an example of a sequence $\{a_n\}$ which satisfies the altered definition, but either does not satisfy $a_n \to L$ or is more restrictive.

(a) There exists K such that, for every $\epsilon > 0$, we have $|a_n - L| < \epsilon$ for all $n > K$.

(b) For all K, there exists $\epsilon > 0$ so that we have $|a_n - L| < \epsilon$ for all $n > K$.

(c) There exists $\epsilon > 0$ and there exists K so that we have $|a_n - L| < \epsilon$ for all $n > K$.

(d) There exists $\epsilon > 0$ so that for all K, we have $|a_n - L| < \epsilon$ for all $n > K$.

(e) For all $\epsilon > 0$ and for all K, we have $|a_n - L| < \epsilon$ for all $n > K$.