

Quiz 6

Please, write clearly and justify all your statements using the material covered in class to get credit for your work.

(1)[5pts] Find an example of a sequence (s_n) of real numbers satisfying the following properties.

(a) Cauchy, but not monotone.

(b) Monotone, but not Cauchy.

(c) Bounded, but not Cauchy.

(d) Monotone sequence (s_n) without a convergent subsequence.

(e) (s_n) converges to 0 but $\sum s_n$ is not a convergent series.

(2)[5pts] Let (a_n) be a sequence of nonnegative real numbers. Prove that $\sum a_n$ converges iff the sequence of partial sums is bounded.