

Quiz 6

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

(1)[4pts] Find an example of a sequence  $(s_n)$  of real numbers satisfying each set of properties.

(a) Cauchy, but not monotone.

(b) Monotone, but not Cauchy.

(c) Bounded, but not Cauchy.

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

(2)[4pts] Let  $(a_n)$  be a sequence of nonnegative real numbers. Prove that  $\sum a_n$  converges iff the sequence of partial sums is bounded.