

Quiz 5

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

(1)[5Pts] Prove that the sequence below is monotone and bounded. Next find its limit.

$$s_1 = 2, \quad s_{n+1} = \frac{1}{4}(2s_n + 7), \quad n \geq 1.$$

(1) [3Pts] Prove or give a counterexample:

(a) Every monotone sequence converges.

(b) If (a_n) and (b_n) are monotone sequences, then $(c_n) = (a_n + b_n)$ is also a monotone sequence.

(c) If (a_n) and (b_n) are monotone non-decreasing sequences, then $(c_n) = (a_n + b_n)$ is also a monotone non-decreasing sequence.