Problem 5: Figure Out the Sequence

Consider the sequence x_n whose first few term are $2, \sqrt{6}, \sqrt{3\sqrt{6}}, \sqrt{3\sqrt{3\sqrt{6}}}, \ldots$

a) Find a recursive formula for x_n.

b) Is x_n monotone?

c) Is x_n convergent? If so, find the limit.

As always, show your work, fully explain and justify your answer. A solution mainly obtained by computers or calculators will not be accepted.

Posting Date 3/17/2024. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 by e-mail or hard-copy by noon on Friday, March 29 21, 2024. An email submission must be a single pdf file. Hard copy submissions must be dropped in the file holder at my office door (Hayes 319) and must include a time stamp.