

MATH 2058 - HW 3 - Questions

1 (P.77 Q4). Let (x_n) be a sequence with $x_1 := 1$ and $x_{n+1} := \sqrt{2 + x_n}$ for all $n \in \mathbb{N}$.

a. Show that (x_n) converges.

b. Find $\lim x_n$

2 (P.77 Q10). Establish the convergence or divergence of the sequence (y_n) where

$$y_n := \frac{1}{n+1} + \frac{1}{n+2} + \cdots + \frac{1}{2n}$$

for all $n \in \mathbb{N}$