

MATH 444 section E13, QUIZ #2

Name

1. (10 pts) Use the definition of the limit of a sequence to prove that

$$\lim\left(\frac{3n+5}{2n+4}\right) = \frac{3}{2}.$$

2. (10 pts) Determine the following sequences (x_n divergent or convergent, find their limit if they are convergent. No procedure needed.

(i) $x_n = 2^n$.

(ii) $x_n = \sin \frac{n\pi}{2}$.

(iii) $x_n = \frac{n^2}{2^n}$.

(iv) $x_1 = 2$ and $x_{n+1} = 2 - \frac{1}{x_n}$ for all $n \in \mathbb{N}$.