

MTH 4424 Homework #4

FALL 2018

Pat Rossi

Name _____

Due: Monday December 3, 2018

1. **Prove:** The sequence $\left\{ \frac{1}{5}, \frac{2}{8}, \frac{3}{11}, \dots, \frac{n}{3n+2}, \dots \right\}$ converges to $L = \frac{1}{3}$.
2. **Prove:** The sequence $\left\{ \frac{1}{6}, \frac{7}{11}, \frac{13}{16}, \dots, \frac{6n-5}{5n+1}, \dots \right\}$ converges to $L = \frac{6}{5}$.
3. **Prove:** The sequence $\left\{ \frac{3}{\sqrt{11}}, \frac{3}{\sqrt{14}}, \frac{3}{\sqrt{19}}, \dots, \frac{3}{\sqrt{n^2+10}}, \dots \right\}$ converges to $L = 0$.