

**Quiz 17, October 25, 2016**

Does the series  $\sum_{k=1}^{\infty} \frac{k}{k+1}$  converge? Justify your answer.

**Answer:Answer:** We see that the limit of the individual terms is

$$\lim_{k \rightarrow \infty} \frac{k}{k+1} = \lim_{k \rightarrow \infty} \frac{1}{1 + \frac{1}{k}} = 1,$$

which is not zero. Thus,  $\sum_{k=1}^{\infty} \frac{k}{k+1}$  diverges by the Individual Term Test for Divergence.