Quiz 15, October 19, 2016

Does the series $\sum_{k=1}^{\infty} \frac{k}{k+10}$ converge or diverge? Justify your answer.

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

$$\lim_{k\to\infty} \frac{k}{k+10} = \lim_{k\to\infty} \frac{1}{1+\frac{10}{k}} = 1,$$

which is not zero. Thus, $\sum_{k=1}^{\infty} \frac{k}{k+10}$ diverges by the Individual Term Test for Divergence.