

Homework for Math 351-003

Individual Homework: Due Monday, January 22.

1. Use the definition of sequence convergence to prove that $\lim_{n \rightarrow \infty} \frac{3n+4}{5n-1} = \frac{3}{5}$.
2. Prove that if (ka_n) converges to a and k is a real number, then the sequence (ka_n) converges to ka .
3. Prove that $\lim_{n \rightarrow \infty} \frac{2n+1}{n^2} = 0$.

Note on 3: you may use results proved in class or previous homework assignments to do this one, if you like. You should still give a rigorous proof, carefully indicating what results you're using.

4. Prove that $\lim_{n \rightarrow \infty} \frac{1}{n^p} = 0$ if $p > 0$.