HANDOUT

(1) Find the limit where required and use the definition of limit to prove each part.

(a) $\lim_{n\to\infty} \dfrac{2n+1}{3n-1} = \dfrac{2}{3}$.

(b) $\lim_{n\to\infty} \dfrac{1}{1+3n} = 0$.

(c) $\lim_{n\to\infty} \dfrac{2n+4}{5n+2}$.

(d) $\langle a \rangle$ where $a_n = 3 + 2^{-n}$.

(2) If a_n^2 converges as $n \to \infty$, does $\lim_{n\to\infty} a_n$ need to exist? Give a proof or counterexample.