

Homework 5: Due Friday, May 8th

(1) Exercise 3.6.2(3)

(2) Using the definition of limit, prove that

$$\lim_{n \rightarrow \infty} \frac{2n + 3}{n - 1} = 2.$$

(3) Prove, using the definition of limit, that if $\lim_{n \rightarrow \infty} a_n = a$, then $\lim_{n \rightarrow \infty} 5 \cdot a_n = 5 \cdot a$.

(4) Exercise 3.6.13. (Do the proof directly, without using 3.6.14.)

(5) Using the definition of limit, prove that

$$\lim_{n \rightarrow \infty} \left(3 + \frac{1}{n} \right)^2 = 9.$$