

**Math 215: Introduction to Advanced Mathematics**  
Problem Set 7

**Due: Friday October 27**

Do the following problems from the text: pg 117: 14, 15.

1) Prove, using the definition of convergence, that the following sequences converge to the proposed limit.

a)  $\left(\frac{1}{6n^2+1}\right)_{n=1}^{\infty} \rightarrow 0$

b)  $\left(\frac{3n+1}{2n+5}\right)_{n=1}^{\infty} \rightarrow \frac{3}{2}$

2) Prove that the sequence

$$(0, 1, 0, 1, 0, 1, 0, \dots)$$

does not converge to  $\frac{1}{2}$ .