

### Group Homework 13

1. (a) If  $\sum_{n=1}^{\infty} a_n$  is convergent and  $\sum_{n=1}^{\infty} b_n$  is divergent, show that  $\sum_{n=1}^{\infty} a_n + b_n$  is divergent. (Hint: suppose it is not true and see if you can come to contradiction.)
- (b) If  $\sum_{n=1}^{\infty} a_n$  and  $\sum_{n=1}^{\infty} b_n$  are both divergent, show by giving two particular examples that  $\sum_{n=1}^{\infty} a_n + b_n$  could be convergent or divergent?