

Homework 1

Due Tuesday, February 1 at 10am. Please upload a legible pdf to Gradescope.

1. Ross 3.3 and 3.4

2. Ross 3.5 and 4.13

3. a) Use induction to prove that

$$|a_1 + a_2 + a_3 + \dots + a_n| \leq |a_1| + |a_2| + |a_3| + \dots + |a_n|$$

for any set of n real numbers $a_1, a_2, \dots, a_n \in \mathbb{R}$.

b) Prove that

$$|a_1 + a_2 + a_3 + \dots + a_n| \geq |a_1| - |a_2| - |a_3| - \dots - |a_n|$$

for any set of n real numbers $a_1, a_2, \dots, a_n \in \mathbb{R}$.

4. Ross 3.8

5. Ross 4.7

6. Ross 4.8

7. Ross 4.16

Please also do Ross 4.3 and 4.4, but you do not need to hand these in.