Homework 1

Due Tuesday, September 6 at 10am. Please upload a legible pdf to Gradescope.

You may work together, but the solutions must be written up in your own words.

1. Ross 3.3 and 3.4

2. Ross 3.5 and 4.13

3. a) Use induction to prove that
$$|a_1 + a_2 + a_3 + ... + a_n| \le |a_1| + |a_2| + |a_3| + ... + |a_n|$$
    for any set of n real numbers $a_1, a_2, ..., a_3 \in \mathbb{R}$.
    b) Prove that
$$|a_1 + a_2 + a_3 + ... + a_n| \ge |a_1| - |a_2| - |a_3| - ... - |a_n|$$
    for any set of n real numbers $a_1, a_2, ..., a_3 \in \mathbb{R}$.

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.