One goal for this course is for you to develop your skill in effectively communicating mathematics. With this in mind, you should clearly write up your solutions. Solutions with little or no justification will receive little or no credit.

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(1) Find the course web page, which is linked to my home page, and read the course policy.

(2) Carefully read sections 1.1 through 1.2, pages 1-10, of Bauldry’s Introduction to Real Analysis.

(3) On page 2 is list of inequalities satisfied by the real numbers. Some of these should be obvious to you; some we may prove in class or on the homework.

(a) Write the Cauchy-Bunyakovsky-Schwarz inequality. Write a few sentences explaining this inequality in your own words. Choosing a few different values for \( n \), give several numerical examples to illustrate this property. Include an example for which equality holds and another for which the strict inequality holds.

(b) Follow the same directions as for part a, but this time for the Minkowski inequality.

2. For those without a book.

2.1. Cauchy-Bunyakovsky-Schwarz inequality.

\[
\left[ \sum_{i=1}^{n} a_i b_i \right]^2 \leq \left[ \sum_{i=1}^{n} a_i^2 \right] \cdot \left[ \sum_{i=1}^{n} b_i^2 \right]
\]

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2.2. Minkowski inequality.

\[ \sqrt{\sum_{i=1}^{n} (a_i + b_i)^2} \leq \sqrt{\sum_{i=1}^{n} a_i^2} + \sqrt{\sum_{i=1}^{n} b_i^2} \]