Review (Lecture Assignment)

Complete this assignment and submit it to Gradescope by 4:00pm on your class day. You can print this sheet, or write on your own paper. Contact us if internet connections or other issues require alternate arrangements.

Each of the following statements is false. Give a brief counterexample for each.

1. If $a_n \to 0$, then $\sum a_n$ converges.

$a_n = \frac{1}{n} \to 0$, $\sum a_n \Rightarrow \infty$

2. If $\sum a_n$ diverges, then $\sum a_n = \pm\infty$.

$a_n = \sin(n)$

↖ diverges just because of oscillation

3. If $\sum(a_n + b_n)$ converges, so do $\sum a_n$ and $\sum b_n$.

$a_n = 1 \to \sum a_n = \infty$

$b_n = -1 \to \sum b_n = -\infty$

$\sum (a_n + b_n) = 0$

One-Minute Questions: Write a sentence for each.

A. What's one mathematical question you have after watching the videos?

Can you make functions of sums and are they useful?

B. What's one interesting thing you learned from the book or videos?

absolute / conditional convergence.