Homework 5: Mathematical Induction

Submission policy. Submit your answers on paper **before** the class starts on **Monday**, Feb. 24, 2020. No late submissions accepted.

1. Handwritten answers are fine but please make sure they are readable.
2. Your name should be printed at the very top of the document.

Administration. This assignment will be graded by the GTA.

Practice Questions – Do NOT submit these.

Textbook questions 5.2, 5.3, 5.4

Question that will be graded. Total Points 100.

Exercise 1.
[100 points].

Prove the following statement by mathematical induction:

$$\sum_{i=1}^{n} \frac{1}{i(i+1)} = \frac{n}{n+1}$$

for all integers $n \geq 1$.
In your proof, clearly mark the Base case and the Inductive step. For the Inductive step, clearly mark the Hypothesis and Conclusion (as done in class).