This problem set covers material from Week 2, dates 2/17- 2/21. Textbook problems (if assigned) can be found at the end of the corresponding chapter.

Instructions: Write or type complete solutions to the following problems and submit answers to the corresponding Canvas assignment. Your solutions should be neatly-written, show all work and computations, include figures or graphs where appropriate, and include some written explanation of your method or process (enough that I can understand your reasoning without having to guess or make assumptions). A general rubric for homework problems appears on the final page of this assignment.

Monday 2/17

1. We are continuously flipping a fair coin. We stop when the absolute value of the difference between the number of Heads flips and the number of Tails flipped is 3 (e.g. TTT or THTHTTT). Let's find the probability p that we stop in **at most 6 tosses**.

    Define the event A_i as the event that we stop on the i-th toss, for $i \geq 1$.

    (a) For each i of interest, find $P(A_i)$ (provide some brief justification/reasoning for each).

    (b) Using part (a), find p. Provide justification where necessary.

2. 1.49 (Hint: define some events whose unions or intersections probabilities will be easy to find!)

3. 1.55 (No need to simplify)

Wednesday 2/19

TBD

Friday 2/21

TBD

General rubric

Points	Criteria
5	The solution is correct *and* well-written. The author leaves no doubt as to why the solution is valid.
4.5	The solution is well-written, and is correct except for some minor arithmetic or calculation mistake.
4	The solution is technically correct, but author has omitted some key justification for why the solution is valid. Alternatively, the solution is well-written, but is missing a small, but essential component.
3	The solution is well-written, but either overlooks a significant component of the problem or makes a significant mistake. Alternatively, in a multi-part problem, a majority of the solutions are correct and well-written, but one part is missing or is significantly incorrect.
2	The solution is either correct but not adequately written, or it is adequately written but overlooks a significant component of the problem or makes a significant mistake.
1	The solution is rudimentary, but contains some relevant ideas. Alternatively, the solution briefly indicates the correct answer, but provides no further justification.
0	Either the solution is missing entirely, or the author makes no non-trivial progress toward a solution (i.e. just writes the statement of the problem and/or restates given information).
Notes:	For problems with multiple parts, the score represents a holistic review of the entire problem. Additionally, half-points may be used if the solution falls between two point values above.