

Mathematics 1550H – Probability I: Introduction to Probability

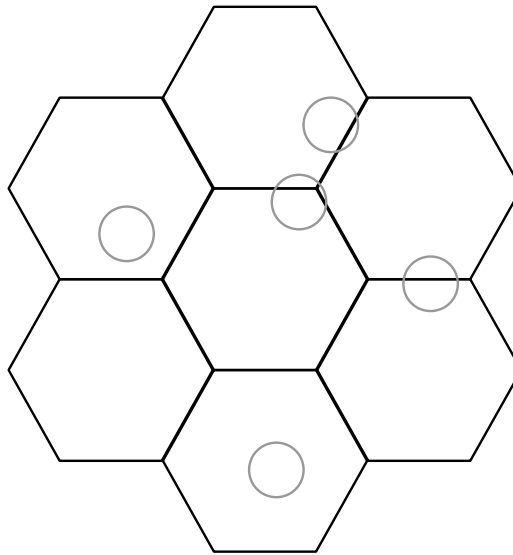
TRENT UNIVERSITY, Summer 2020 (S62)

Assignment #3

Hexenkreis

Due on Friday, 10 July.

Please submit your solutions using Blackboard's assignment module. If that fails, please email your solutions to the instructor (sbilaniuk@trentu.ca). Scans or photos of handwritten solutions are perfectly acceptable, so long as they are legible and in some common format. (Combined into a single pdf, for preference.)



We are given an infinite grid of regular hexagons with side length 2, of which a small piece is given above. Coins of diameter 1 are randomly tossed onto this grid.

1. What is the probability that a given coin randomly tossed onto the grid will not end up touching the side of one or more hexagons? [10]

Hint: This problem is similar in concept to Exercise 15 in Section 2.2 of the textbook. You may need to compute an area or two, but you won't need calculus. The area of a regular hexagon, should you need it, is something you can look up (in which case give a reference) or work out using basic geometry (in which case you should give at least a sketch of how you worked it out).