Prep Course

Module I Homework 1

Due 23:30, Saturday, July 13th, 2024 (Chicago time)

For this Homework, you should submit a single PDF named: **M1HW1_LASTNAME_Firstname.pdf**

Problem 1

Please round your answer to four decimal places.

(a) Tom fires 2 torpedoes at a ship. Each torpedo independently has a 1/3 chance of hitting the ship. The ship sinks if either torpedo hits it. What is the probability that Tom sinks the ship?

(b) Now, let's say that Tom fired 2 torpedoes and later looks up to see that the ship has sunk, what is the probability that both torpedoes hit the ship?

Problem 2

Let 20 people, including exactly 3 women, seat themselves randomly at four tables (denoted A, B, C, D) of five persons each, with all arrangements equally likely. Let p be the probability that no women sit at table A. Find p. Please round your answer p to four decimal places.

Problem 3

Do P1.27. You may assume that the weather of Saturday is independent of that of Sunday. Please round your answer to four decimal places.

Problem 4

Do P1.28. You may assume that the weather of Saturday is independent of that of Sunday. Please round your answer to four decimal places.

Problem 5

Suppose we draw two cards out of a standard deck of 52 poker cards without replacement. What is the probability that the two cards are of the same suit?

Your answer is either a fraction or a real number rounding to 4 decimal places.