ECON 0150 | Fall 2024 | Homework 4

Due: Tuesday, October 22

Homework is designed to both test your knowlege and challenge you to apply familiar concepts in new applications. Answer clearly and completely. You are welcomed and encouraged to work in groups so long as your work is your own. Use the datafiles to answer the following questions. Then submit your figures and answers to Gradescope.

Q1. This question is based on the Excel file "HW4_Question1.xlsx" on the Part 2 page. The dataset contains monthly data on the number of scheduled passengers flying out of Pittsburgh International airport between January 2003 and December 2016, with columns for domestic passengers, international passengers, and total passengers.

a. The mean, standard deviation, and variance of the number of international passengers between January 2003 and December 2016 are *(rounded to the closest integer)*:

A) Mean 6,617; Standard Deviation 3,074; Variance 9,451,447

B) Mean 6,920; Standard Deviation 4,864; Variance 23,658,483

C) Mean 5,359; Standard Deviation 2012; Variance 4,049,532

D) Mean 354,485; Standard Deviation 54,322; Variance 2,950,909,293

b. The mean, median, and range of the number of domestic passengers in 2016 are *(rounded to the closest integer)*:

A) Mean 322,513; Median 331,316; Range 97,948

B) Mean 328,680; Median 336,785; Range 105,076

C) Mean 373,374; Median 344,135; Range 414,467

D) Mean 380,294; Median 353,511; Range 433,820

c. The mean and standard deviation of the number of total passengers between January 2005 and December 2014 are *(rounded to the closest integer)*:

A) Mean 328,680; Standard Deviation 35,866

B) Mean 344,101; Standard Deviation 54,322

C) Mean 354,485; Standard Deviation 54,322

D) Mean 380,294; Standard Deviation 93,905

Q2. This question is based on the Excel file "HW4_Question2.xlsx" on the Part 2 page. This dataset contains observations from a random sample of young economics graduates. For each individual in the sample, the height (in inches) and age are recorded. Which of the following statements is true about the sample mean height among economics graduates who are older than 22?

A) The sample mean is below 66 inches

B) The sample mean is between 66 and 67 inches

C) The sample mean is between 67 and 68 inches

D) None of the above

Q3. To answer this question, you need to download the Excel file "HW4_Question2.xlsx" from the Part 2 page. This dataset contains data on emailing among employees in different divisions of a medium size company. To better understand the amount of emailing of their employees, the company created a sample of employee-to-employee emailing activity. Each employee was asked to monitor the number of emails he or she received from colleagues within 24 hours. Consider two types of observations:

- the number of e-mails received by any employee (i.e., across all divisions) within any 24-hour period
- the number of e-mails received by a Division C employee within any 24-hour period

Which of the following statements is true?

A) During the 24 hours being tracked, the sample mean of the number of e-mails received by any employee is greater than the sample mean of the number of e-mails received by a Division C employee

B) During the 24 hours being tracked, the sample mean of the number of e-mails received by any employee is equal to the sample mean of the number of e-mails received by a Division C employee.

C) During the 24 hours being tracked, the sample mean of the number of e-mails received by any employee is smaller than the sample mean of the number of e- mails received by a Division C employee.

D) None of the above.