Final Exam

Adapt 4

1/1 point (graded)

You recorded the number of hours that each of 1,000 light bulbs lasted before burning out. The data type of the hours variable is:

- Nominal
- Ordinal
- Interval
- Ratio ✔

Submit

You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 17

1/1 point (graded)

Using the data in Module 1_Quiz Data_Stocks.xlsx, answer the following question.

Which stock exhibits the most skewness?

- 3M
- GE ✔
- IBM
- Intel

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 27

1/1 point (graded)

Using the data in Module 1_Quiz Data_Stocks.xlsx, answer the following question.

How many of the 3M returns are outliers? Use the rule of thumb as described by Wayne. Do not create a box plot to determine the answer.

- 1
- 4
- 8 ✔
- 12

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 52

0/1 point (graded)

The data in Module 1_Quiz Data_BoxPlot.xlsx are monthly returns on 5 stocks. Use this data to create a box plot and then answer the following question.

Which stock exhibits the least variability? Base your response on the visualization.

- Dell
- INTC
- MSFT
- NT ✖
- PFE

Submit You have used 1 of 1 attempt

✖ Incorrect (0/1 point)

Adapt 62

1/1 point (graded)

You are analyzing a spreadsheet showing the relationship between genre of movie (e.g., comedy, horror, drama, etc.), rating (e.g., G, PG, R), and revenue.

You want to graphically display this data. Which two graphics would work best for this purpose?

- [ ] Histogram
- [ ] Boxplot
- [ ] Pareto chart
- [x] Sunburst chart
- [x] Tree map

✔

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 65

1/1 point (graded)

Using the data in Module 1_Quiz Data_Pareto.xlsx, create a Pareto Chart illustrating the complaints that your organization has received over the last 6 months, and then answer the following question.

Based on the Pareto chart, what is the cumulative frequency of the complaints that you would recommend that your organization focus on to drive increased customer satisfaction?

- 37%
- 70% ✔
- 79%
- 84%

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 72

1/1 point (graded)

If we consider the toss of four coins as an experiment, how many equally likely outcomes does the sample space have?

- 4
- 8

- ◉ 16 ✔
- ○ 20

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 75

1/1 point (graded)

Two standard dice are tossed. What is the probability that the dice sum to 8?

- ○ 3/36
- ○ 4/36
- ◉ 5/36 ✔
- ○ 6/36

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 84

1/1 point (graded)

Taylor and Katy repeatedly toss a fair coin. Katy wins if heads are thrown, Taylor wins if tails are thrown, and the game ends when someone has won three times. Katy is currently behind 1 to 2. The chance Katy wins is:

- 1/4 ✔
- 1/2
- 3/4

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 91

1/1 point (graded)

You have a group of 12 products. You know that 4 are defective. If 3 are drawn at random without replacement, what is the probability that none of them are defective?

- .25 ✔
- .33
- .38
- .42

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 121

1/1 point (graded)

Ninety (90%) of an insurance company's policyholders are low risk and 10% are high risk. Assume that each policyholder has either 0 or 1 accident in a year. Assume 75% of high risk policyholders have an accident in a year and 10% of low risk policyholders have an accident in a year.

If we randomly pull a policyholder's accident report, what is the chance the policyholder was low risk?

- 0.33

- 0.45
- 0.55 ✔
- 0.66

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 138

0/1 point (graded)

Given a standard deck of cards, what is the probability of drawing a face card, given that it is a red card?

- 3/26
- 6/26
- 9/26 ✖
- 13/26

Submit You have used 1 of 1 attempt

✖ Incorrect (0/1 point)

Adapt 163

1/1 point (graded)

A toss of a 15-sided die is equally likely to be any integer between 1 and 15 inclusive. What is the expected value of the number tossed? Provide your answer to a single decimal point.

- 7.0
- 7.5
- 8.0 ✔
- 8.5

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 178

1/1 point (graded)

Based on historical results, a pharmaceutical company has determined that if a new cholesterol-reducing drug is manufactured (introduced to the market), the following probability distribution will describe this drug's contribution to the company's profits during the next six months.

Profit Contribution	Probability of Profit Contribution
-$40,000	.40
$60,000	.10
$100,000	.50

Based on the information given above, how much would you expect the new drug to contribute to the profit of the company?

- (•) $40,000 ✔
- ( ) $50,000
- ( ) $56,000
- ( ) $60,000

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 187

1/1 point (graded)

Suppose 4% of all cell phone chips are defective. We randomly select 100 of the 50,000 cell phone chips produced in a day. What is the chance that 2 defective chips will be found?

- 0.004
- 0.04
- 0.08
- 0.14 ✔

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 196

1/1 point (graded)

The Securities and Exchange Commission has determined that the number of companies listed in NYSE declaring bankruptcy is approximately a Poisson distribution with a mean of 2.6 per month.

What is the probability of more than one bankruptcy occurring during the next month?

What is the probability of more than one bankruptcy occurring during the next month?

- .1931
- .2674
- .4816
- .7326 ✔

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 210

1/1 point (graded)

Assume the average weight of a loaf of bread is a normal random variable with mean = 1 pound and standard deviation .05 pounds. What fraction of the loaves weigh between 0.98 and 1.04 pounds?

- 0.44 ✔
- 0.46

- 0.48
- 0.50

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 223

1/1 point (graded)

If you assume data follows a normal distribution, what is the corresponding percentile for a Z-score of -.5?

- 20th
- 25th
- 28th
- 31st ✔

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 235

1/1 point (graded)

You are trying to determine the proportion of all cars produced today that have defective transmissions. For each four-door car produced today, you will flip a coin; if it comes up heads, you will result in a test of the transmission.

Is this sampling plan biased? If so, which sampling bias is exhibited?

- The sampling plan is not biased.
- Response bias
- Selection bias ✔
- Publication bias

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 246

1/1 point (graded)

One 16-ounce bottle of an energy drink has an average of 400 mg of caffeine with a standard deviation of 20 mg. What is the probability that the average caffeine in a sample of 25 bottles is no more than 390 milligrams?

- (•) 0.006 ✔
- ( ) 0.004
- ( ) 0.002
- ( ) 0.001

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 252

1/1 point (graded)

A drawer contains 4 capsules numbered 2, 3, 5, and 8. A sample of size 3 is drawn with replacement. What is the standard deviation of x-bar?

- 0.59
- 1.33 ✔
- 1.95
- 2.14

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 259

1/1 point (graded)

A company with 40,00 employees wants to estimate the commuting time it takes an employee to get to work. They survey 200 employees and find a sample mean of 35 minutes with a sample standard deviation of 10 minutes.

The company is 99% sure that that the average commuting time is within which of the following ranges?

- 33.83 to 36.16 minutes

- 33.61 to 36.39 minutes
- 33.18 to 36.82 minutes ✔
- 34.90 to 35.10 minutes

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 273

1/1 point (graded)

We are trying to estimate the average salary of employees at a company. Assume the standard deviation of employee salaries is $20,000, and we want to be 95% sure our estimate is accurate within $5,000.

What size sample is needed?

- 62 ✔
- 85
- 170

246

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 282

0/1 point (graded)

A company with 400 employees wants to estimate the average commuting time for its employees. They believe the standard deviation of the commuting time of employees is 30 minutes.

If they want to be 95% confident that there estimate of mean commuting time is accurate within 5 minutes, what sample size is needed? Apply the finite correction factor to obtain your answer.

103

110 ✖

120

138

Submit You have used 1 of 1 attempt

✖ Incorrect (0/1 point)

Adapt 297

1/1 point (graded)

Let μ= average time needed for an express mail company to deliver a package. Suppose:

HO: μ = 2 days

Ha: μ > 2 days

If you conclude that average time to deliver a package is greater than two days when it's actually two days, you have committed which type of error?

- ◉ Type I ✔
- ○ Type II

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 311

1/1 point (graded)

In the past, it has taken an express mail company an average of 2 days to deliver packages. After hiring a consulting firm, they want to know if delivery has improved. Let μ= average number of days needed to deliver a package after hiring a consulting firm. The company wants to test the following:

$$H_o: \mu >= 2 \text{ against } H_a: \mu < 2.$$

A sample of 100 packages yields xbar = 1.8 and s = 1.5. For α = 0.05, what do you conclude?

- We fail to reject Ho, because the p-value is 0.046.
- We fail to reject Ho, because the p-value is 0.091. ✔
- We reject Ho, because the p-value is 0.046.
- We reject Ho, because the p-value is 0.091.

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 344

1/1 point (graded)

A jar of applesauce is supposed to weigh 18 ounces. The company is trying to determine if its applesauce is overweight. Let μ = average ounces in a jar of applesauce. You want to test the following:

$H_o: \mu <= 18$ ounces against $H_a: \mu > 18$

A random sample of 16 jars yields $\bar{x} = 18.2$ ounces and s = 0.6 ounces. For α=0.05, what do you conclude? Assume the relevant population follows a normal random variable.

- (●) We fail to reject Ho, meaning that the jars are NOT overweight. ✔
- ( ) We fail to reject Ho, meaning that the jars are overweight.
- ( ) We reject Ho, meaning that that the jars are NOT overweight.
- ( ) We reject Ho, meaning that the jars are overweight.

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 359

1/1 point (graded)

Let p = fraction of shots taken from right side of the court when the rebound is grabbed on the right side of the court. Of 110 missed shots from the right side of the court, 65 were rebounded on the right side of the court.

For α = 0.05, Ho: p = 0.5, and a two-tailed test, what would you conclude?

- We fail to reject Ho, because the p-value is 0.977.
- ✔ We fail to reject Ho, because the p-value is 0.07.
- We reject Ho, because the p-value is 0.035.
- We reject Ho, because the p-value is 0.017.

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 383

1/1 point (graded)

The Module 5_Quiz Data_High School.xlsx spreadsheet contains the income of randomly selected families whose students attend Odessa and Dylan High Schools.

For α = 0.05, what would you conclude about the variances of family incomes at the two schools? Assume family incomes are normally distributed at each school.

- ◉ The variances are equal. ✔
- ○ The variances are NOT equal.

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Adapt 402

0/1 point (graded)

The Module 5_Quiz Data_Process.xlsx spreadsheet contains the amount (in pounds) of a drug produced for 100 days using Process A and the amount of a drug (in pounds) produced using Process B on a different set of 100 days. You want to test Ho: mean pounds produced in a day with Process A = mean pounds produced in a day with Process B against Ha: mean pounds produced in a day with Process A ≠ mean pounds produced in a day with Process B.

For α = 0.05, what would you conclude?

- ○ We reject Ho, because the p-value is 0.03.
- ○ We reject Ho, because the p-value is 0.05.
- ◉ We fail to reject Ho, because the p-value is 0.33. ✖

- We fail to reject Ho, because the p-value is 0.67.

Submit You have used 1 of 1 attempt

✖ Incorrect (0/1 point)