Question 1

A sports analyst was interested in finding out how well a football team's winning percentage (stated as a proportion) can be predicted based upon points scored and points allowed. She selects a random sample of 15 football teams. Each team played 10 games. She decided to use the point differential, points scored minus points allowed as the predictor variable. The data are shown in the table below, and regression output is given afterward.

Is there evidence of an association between Point Differential and Winning Percentage? Test an appropriate hypothesis and state your conclusion in the proper context.
Answer: https://biology-forums.com/index.php?topic=1934277

Question 2

A large manufacturer of batteries knows that, historically, 10% of its batteries come off the production line defective, and the remaining 90% of batteries come off the production line in working condition. Conduct a simulation to estimate how many batteries the company needs to pull off the production line in order to be sure of ending up with 10 working batteries.
Show three trials by clearly labeling the random number table given below. Specify the
outcome of each trial.
Trial 1:
10242 50692 18977 28370 82669 83236 77479 90618 43707 78695
Trial 2:
81183 48554 60809 39996 81915 25404 33366 92082 04822 79866
Trial 3:
06765 67041 20479 54612 13411 36837 69983 53082 43589 27865
Answer: https://biology-forums.com/index.php?topic=1934381

Question 3

Carpet A store selling carpet tracks the amount of square footage sold to its customers, rounding to the nearest 500 sq. ft. Here is the distribution.
a. What is the average expected area sold?
b. If the average cost of carpet sold is $3/sq. ft., what is the average sale price per customer?
c. If a salesman completes sales to five customers one day, what do you expect his total sales to be?
Answer: https://biology-forums.com/index.php?topic=1934458

Question 4

It is generally believed that electrical problems affect about 14% of new cars. An automobile mechanic conducts diagnostic tests on 128 new cars on the lot.
a. Describe the sampling distribution for the sample proportion by naming the model and telling its mean and standard deviation. Justify your answer.
b. Sketch and clearly label the model.
c. What is the probability that in this group over 18% of the new cars will be found to have electrical problems?
Answer: https://biology-forums.com/index.php?topic=1934463

Question 5

A sports analyst was interested in finding out how well a football team's winning percentage (stated as a proportion) can be predicted based upon points scored and points allowed. She selects a random sample of 15 football teams. Each team played 10 games. She decided to use the point differential, points scored minus points allowed as the predictor variable. The data are shown in the table below, and regression output is given afterward.

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Answer: https://biology-forums.com/index.php?topic=1934277

Question 6

A biology professor responds to some student questions by e-mail. The probability model below describes the number of e-mails that the professor may receive from students during a day.

a. How many e-mails should the professor expect to receive each day?
b. What is the standard deviation?
c. If it takes the professor an average of ten minutes to respond to each e-mail, how much time should the professor expect to spend responding to student e-mails each day?

Answer: https://biology-forums.com/index.php?topic=1934408

Question 7

All 423 Wisconsin public schools were all given a rating by the Wisconsin Department of Public Instruction based on several variables. The mean rating reported was 71.5 and the standard deviation was 4.87. To do a follow-up study a random sample of 40 schools was selected. In this sample, the mean rating was 70.9. One of the researchers is alarmed, thinking the report may have been mistaken. Do you think this sample result is unusually low? Explain.

Answer: https://biology-forums.com/index.php?topic=1934468

Question 8

A professor at a large university believes that students take an average of 15 credit hours per term. A random sample of 24 students in her class of 250 students reported the following number of credit hours that they were taking:

Does this sample indicate that students are taking more credit hours than the professor believes? Test an appropriate hypothesis and state your conclusion.

Answer: https://biology-forums.com/index.php?topic=1934231

Question 9

Breaking strength A company manufactures polypropylene rope in six different sizes. To assess the strength of the ropes they test two samples of each size to see how much force (in kilograms) the ropes will hold without breaking. The table shows the results of the tests. We want to create a model for predicting the breaking strength from the diameter of the rope.

a. Find a model that uses re-expressed data to straighten the scatterplot.
b. The company is thinking of introducing a new 25mm rope. How strong should it be? (Write a sentence in context based on one of your models.)

Answer: https://biology-forums.com/index.php?topic=1934124

Question 10

Construct a 95 confidence interval for the population mean, . Assume the population has a normal distribution. A sample of 20 part-time workers had mean annual earnings of 3120 with a standard deviation of 677.

 Round to the nearest dollar.
 A) (2135, 2567) B) (1324, 1567) C) (2657, 2891) D) (2803, 3437)[br][br][b][color=brown]Q. 2[/color][/b][br][br]Determine whether or not the following events are mutually exclusive. One person is randomly selected from a church congregation: the person is female, the person is over 55 years of age.

 A) not mutually exclusive B) cannot be determined C) mutually exclusive[br][br][b][color=brown]Q. 3[/color][/b][br][br]A social researcher in a particular school district wishes to obtain information on the number of school-age children (ages 6-17) per family.

 A random sample of 250 households was selected from the district's records. Each was contacted and asked how many school-age children were in the household. Identify the data collection method.
 A) designed experiment B) survey
 C) observational study D) published source[br][br][b][color=brown]Q. 4[/color][/b][br][br]When using interval data, one cannot

 A) set up inequalities. B) form differences. C) divide. D) do any of these.[br][br][b][color=brown]Q. 5[/color][/b][br][br]A computer package was used to generate the following printout for estimating the sale price of condominiums in a particular neighborhood.

 X = sale_price

 SAMPLE MEAN OF X = 46,400
 SAMPLE STANDARD DEV = 13,747
 SAMPLE SIZE OF X = 15
 CONFIDENCE = 98

 UPPER LIMIT = 55,713.80
 SAMPLE MEAN OF X = 46,400
 LOWER LIMIT = 37,086.20

 What assumptions are necessary for any inferences derived from this printout to be valid?
 A) The sample variance equals the population variance.
 B) The population mean has an approximate normal distribution.
 C) The sample was randomly selected from an approximately normal population.

D) All of these are necessary.[br][br][b][color=brown]Q. 6[/color][/b][br][br]College students' spending A consumer group wants to see if a new education program will improve the spending habits of college students. Students in an economics class are randomly assigned to three different courses on spending habits.

a.

What are the experimental units?

b. How many factors are there?

c. How many treatments are there?

d. What is the response variable?

Answer: https://biology-forums.com/index.php?topic=1698187

Question 11

One common method of evaluating the performance of a mutual fund is to compare its returns to those of a recognized benchmark such as an index of the returns on all securities of the type that the fund accumulates. The Janus Worldwide Fund considers its benchmark to be the MSCI World IndexSM. The table below depicts the annual returns (percent) for a recent ten-year period. Is this fund a good investment? That is, does this fund significantly outperform its benchmark?

Source:

https://ww3.janus.com/advisor/Documents/Advisor%20Lit%20System/Fact%20Sheets/4Q12%20Fact%20Sheet%20(Janus%20Worldwide%20Fund-Class%20A)_exp%2004-15-13.pdf

Explain clearly whether this data should be analyzed using a 2-sample t test approach or a match pairs t-test method.

Answer: https://biology-forums.com/index.php?topic=1934502