

Question 1

Tim Hortons conducts a random survey of 1000 customers in their Ottawa outlets on a particular day. For each customer they collect data on the time taken to fill the order, how frequently the customer comes to Tim Hortons in a week, whether the customer purchased only coffee or additional item(s), and the level of overall satisfaction using a scale from 1 to 5. Which of the variables is quantitative?

- A) the time taken to fill the order, and how frequently the customer comes to Tim Hortons in a week
- B) whether the customer purchased only coffee or additional item(s)
- C) the level of overall satisfaction
- D) whether the customer purchased only coffee or additional item(s) and the level of overall satisfaction
- E) the level of overall satisfaction and how frequently the customer comes to Tim Hortons in a week

Answer: <https://biology-forums.com/index.php?topic=760070>

Question 2

If a residual plot exhibits a curved pattern in the residuals, this means that

- A) The relationship between x and y is also curved.
- B) The residuals are not normally distributed.
- C) x and y are positively correlated.
- D) The residuals have a constant variance.
- E) The relationship between x and y is linear.

Answer: <https://biology-forums.com/index.php?topic=760189>

Question 3

Which of the following statements is true?

- A) The quantitative variable condition is not satisfied.
- B) The linearity condition is not satisfied.
- C) There are obvious outliers.
- D) The quantitative variable condition is satisfied.
- E) The Y-intercept of the line of best fit is approximately zero.

Answer: <https://biology-forums.com/index.php?topic=760181>

Question 4

For each of the following scenarios, indicate which is the predictor variable and which is the response variable.

- a. A study examined consumption levels of oil and carbon dioxide emissions for a sample of counties.
- b. Data were collected on job performance rating and hours of training for a sample of employees at a telecommunications repair facility.
- c. Salary data as well as years of managerial experience were collected for a sample of executives in the high tech industry.

Answer: <https://biology-forums.com/index.php?topic=760147>

Question 5

Below is a time series graph for monthly closing price of 3M Dental Products stock (beginning June 2005).

- a. Are the closing prices for shares of 3M Dental Products from June 2005 through August 2007 stationary? Explain.
- b. Would a histogram provide a good summary of these stock prices? Explain.

Answer: <https://biology-forums.com/index.php?topic=760138>

Question 6

Below is the five number summary of the hourly wages (\$) for advertising / promotion managers.

Min Q1 Median Q3 Max

19.64 29.36 34.18 40.86 57.26

- a. Would you expect the mean salary for this sample of marketing managers to be higher or lower than the median? Explain.
- b. Which would be a more appropriate measure of central tendency for these data, the mean or median? Explain.
- c. Calculate the range.
- d. Calculate the IQR.

Answer: <https://biology-forums.com/index.php?topic=760134>

Question 7

Find each of the following percentages.

- a. What percentage of the responses were males who prefer Pentax?
- b. What percentage of the male responses prefer Pentax?
- c. What percentage of the consumers who chose Pentax were males?

Answer: <https://biology-forums.com/index.php?topic=760108>

Question 8

The slope of the estimated regression line that relates the response variable (monthly sales) to the predictor variable (price per kilogram) is

A) 95.47
B) 0.858
C) -4.684
D) -0.858
E) -8.999

Answer: <https://biology-forums.com/index.php?topic=760182>

Question 9

A small manufacturing company recently instituted Six Sigma training for its employees. Two methods of training were offered: online and traditional classroom. Management was interested in whether the division in which employees worked affected their choice of method. Below is a table summarizing the data.

Sales Quality Operations Total

Traditional 16 10 8 34

Online 35 23 44 102

Total 51 33 52 136

- a. What is the probability that an employee chose online training?
b. What is the probability that an employee is in the quality division and chose online training?
c. What is the probability that an employee chose online training given that he/she is in the sales division?

Answer: <https://biology-forums.com/index.php?topic=760195>

Question 10

Of the consumers who are male, the percentage who prefer Pentax is

- A) 44.1% (275/623)
B) 6.6% (41/623)
C) 52.6% (41/78)
D) 14.9% (41/275)
E) 12.5% (78/623)

Answer: <https://biology-forums.com/index.php?topic=760118>

Question 11

Consumer Reports Health routinely compares drugs in terms of effectiveness and safety. Suppose that in the summer of 2010 they reviewed drugs used to treat arthritis. Information was reported on convenience of use (how many pills required each day), possible side effects (e.g., dizziness, stomach upset), cost, and ratings of effectiveness in relieving symptoms (very effective, somewhat effective, not effective). Describe the W's for the information given.

- Who:
- What:
- When:
- Where:
- How:
- Why:

Answer: <https://biology-forums.com/index.php?topic=760049>

Question 12

Below is the five number summary of the hourly wages (\$) for sales managers.

Min Q1 Median Q3 Max

20.94 37.64 44.77 49.34 67.11

Suppose there had been an error and that the lowest hourly wage for sales managers was \$18.50 instead of \$20.94. Indicate how this change would affect the following summary statistics (increase, decrease, or stay about the same).

- a. Mean
b. Median
c. Range
d. IQR
e. Standard deviation

Answer: <https://biology-forums.com/index.php?topic=760135>

Question 13

Below is a plot showing residuals versus fitted values for the estimated regression equation relating monthly sales of coffee to price per kilogram.

Based on this plot we can say

- A) The linearity condition is not satisfied.
- B) The linearity condition is reasonably satisfied.
- C) A slight thickening of the plot is definitely not evident.
- D) The correlation coefficient is close to one.
- E) Nothing related to regression analysis can be said based on this graph.

Answer: <https://biology-forums.com/index.php?topic=760185>

Question 14

If the point in the lower left hand corner (\$2.00 per kilogram, 6 grams of fat) were removed, the correlation would most likely

- A) remain the same
- B) become stronger negative
- C) become weaker negative
- D) become positive
- E) become zero

Answer: <https://biology-forums.com/index.php?topic=760161>

Question 15

The table below shows data on total assets (\$ million) for a sample of a bank's branches. Prepare a stem and leaf display. Comment on the shape of the distribution.

BRANCH ASSETS (\$ million)

1 88
2 80
3 58
4 92
5 81
6 70
7 89
8 84

Answer: <https://biology-forums.com/index.php?topic=760130>

Question 16

Below is the five-number summary of salaries (in \$) for a sample of marketing managers.

Min Q1 Median Q3 Max

46,360 69,693 77,020 91,750 129,420

- a. Would you expect the mean salary for this sample of marketing managers to be higher or lower than the median? Explain.
- b. Which would be a more appropriate measure of central tendency for these data, the mean or median? Explain.
- c. Calculate the range.
- d. Calculate the IQR.

Answer: <https://biology-forums.com/index.php?topic=760128>

Question 17

Consider the following sample data. The standard deviations from the data are 3.67 for Y, and 45.28 for X. These sample data are shown as follows:

Y X

10 100

7 110

12 90

15 200

16 150

Given this data, the sample correlation is approximately

- A) 0.6770
- B) 0.5416
- C) 0.1565
- D) 0.3585
- E) 0.1956

Answer: <https://biology-forums.com/index.php?topic=760168>

Question 18

For each of the following scenarios, indicate which is the predictor variable and which is the response variable.

- a. A supermarket chain gathers data on the amount they spend on promotional material (specials, coupons, etc.) and sales revenue generated each quarter.

- b. Government sponsored research investigated the relationship between the number of hours individuals spend on the Internet and age.
- c. A real estate association conducted a study on home prices and economic strength for different regions of Canada.

Answer: <https://biology-forums.com/index.php?topic=760152>

Question 19

Prepare an appropriate chart to display the marginal distribution of brands.

Answer: <https://biology-forums.com/index.php?topic=760110>

Question 20

Which of the following statements is correct?

- A) A scatter plot showing two variables with a positive linear relationship will have all points on a straight line.
- B) The stronger the linear relationship between two variables, the closer the correlation coefficient will be to +1.0.
- C) Two variables that are uncorrelated with one another may still be related in a nonlinear manner.
- D) A curvilinear relationship will always have a correlation coefficient of zero.
- E) All of the above are correct.

Answer: <https://biology-forums.com/index.php?topic=760164>