Unit 3: Two-Variable Statistics

ADVANCED · SET 2

Name: _____ Date: _____

Solve each problem and write your exact answer in the blank. Use plain-text notation (fractions like 3/4, decimals, or coordinate pairs). Show your work on scratch paper.

1. A pet study surveyed 45 dogs and 55 cats. Among the dogs, 27 preferred Treat A; among the cats, 22 preferred Treat A. According to the two-way table, how many animals total preferred Treat A?

Answer: _____

2. In a two-way table of 9th graders, 84 ride the bus and 36 walk to school (no other categories). Find the conditional relative frequency P(rides the bus | 9th grader) as a fraction in lowest terms.

Answer: _____

3. For the data points (2, 5), (4, 11), (6, 14), (8, 20), the least-squares line of best fit has the form y = mx + b. Compute the slope m.

Answer: _____

4. A line of best fit is y = 2.4x + 0.5. Use it to predict the value of y when x = 10.

Answer: _____

5. The line of best fit for a data set is y = 3x + 2. For the observed point (5, 18), compute the residual (actual minus predicted).

Answer: _____

6. A two-way table has a grand total of 80 people. Exactly 12 of them are in the cell 'likes tea AND drinks it hourly.' Write the joint relative frequency of that cell as a fraction in lowest terms.

Answer: _____

7. For the data points (1, 2), (2, 5), (3, 7), (4, 8), (5, 10), compute the correlation coefficient r, rounded to two decimal places.

Answer: _____

8. For the data points (10, 15), (20, 25), (30, 40), (40, 50), (50, 70), the least-squares line of best fit is y = mx + b. Compute the slope m (as a decimal).

Answer: _____

9. A two-way table shows shopping preference: 140 people prefer online and 60 prefer in-store (no other categories). What percent of the surveyed people prefer online? Give the number of percent.

Answer: _____

10. The line of best fit for a data set is y = 1.5x - 3. Use it to predict the value of y when x = 8.

Answer: _____

11. In a survey of 200 people, 120 own a car. Of those car owners, 90 commute daily. From the two-way table, find the conditional probability P(commutes daily | owns a car) as a fraction in lowest terms.

Answer: _____

12. For the data points (0, 3), (1, 5), (2, 7), (3, 9), (4, 11), the least-squares line of best fit is y = mx + b. Compute the y-intercept b.

Answer: _____