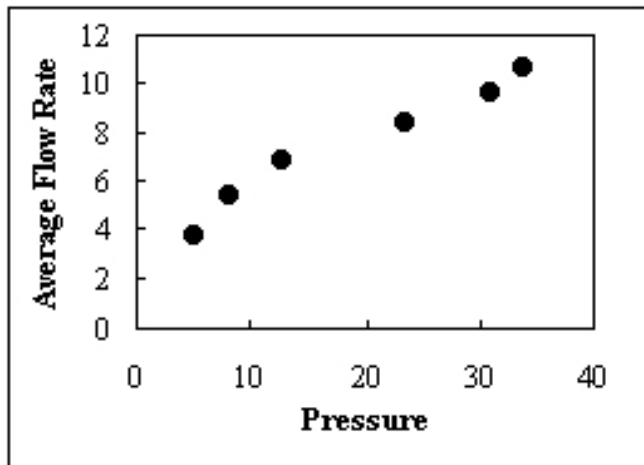


MULTIPLE CHOICE. Choose the one that best completes the statement or answers the question.

- 1) A positive relationship exists when both variables increase or decrease at the same time. 1) _____
 A) True B) False

- 2) Determine the type of relationship shown in the figure below. 2) _____



- A) There is no relationship. B) positive
 C) negative D) multiple

- 3) The range of the correlation coefficient is from 0 to 1. 3) _____
 A) True B) False

- 4) Ten pairs of points yielded a correlation coefficient r of 0.790. If $\alpha = 0.05$, which of the following statements is correct if $H_0: \rho = 0$? 4) _____
 A) There is no correlation between the variables.
 B) Because the test value is inside the critical region, the null hypothesis is rejected.
 C) Because test value is outside critical region, the null hypothesis is not rejected.
 D) Because the test value is on the boundary, we can't make a conclusion.

- 5) A regression line can be used to show trends in data. 5) _____
 A) False B) True

- 6) A regression line was calculated as $y' = 9.7 - 3.2x$. The slope of this line is -3.2. 6) _____
 A) False B) True

- 7) If the equation for the regression line is $y' = 9x - 5$, then a value of $x = 2$ will result in a predicted value for y of 7) _____
 A) 23 B) 13 C) 14 D) 19

- 8) If the correlation coefficient is 0.930, what is the unexplained variation? 8) _____
 A) 93% B) 86.5% C) 13.5% D) 7%

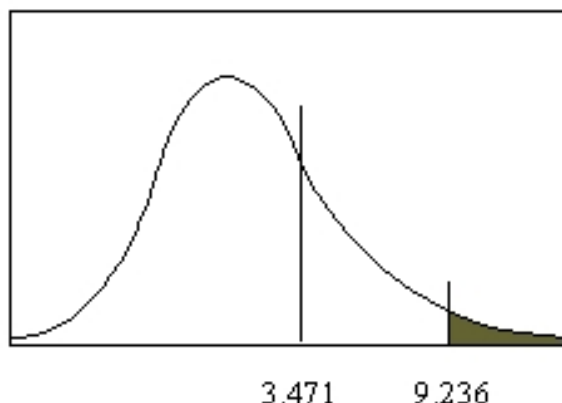
- 9) As a researcher collects more and more data, the 95% prediction intervals in general _____
 A) become narrower and narrower, but the widths are always more than approximately 4 times the standard error of the estimate.
 B) become narrower and narrower, but the widths are always more than approximately 4 times the slope.
 C) become narrower and narrower, but the widths are always more than approximately 2 times the standard error of the estimate.
 D) become narrower and narrower, with the widths getting closer and closer to 0.

- 10) If the correlation coefficient r is equal to 0.566, find the coefficient of determination. _____
 A) 0.752 B) 0.680 C) 0.443 D) 0.320

- 11) In a goodness of fit test between one observed frequency distribution and one expected frequency distribution, the degrees of freedom are equal to the number of categories minus two. _____
 A) False B) True

- 12) In a chi-square goodness-of-fit test when there is close agreement between the observed frequency and the expected frequency, the chi-square test value will be small. _____
 A) False B) True

- 13) The null hypothesis should not be rejected for the data given in the figure below. _____



- A) True B) False

- 14) A biology professor claims that, on the average, 15% of her students get a grade of A, 25% get a B, 40% get a C, 10% get a D, and 10% get an F. The grades of a random sample of 131 students were recorded. In the following table: Grade 1=A, 2=B etc. _____

Grade	1	2	3	4	5
Observed	13	21	73	11	13

What is the value of χ^2 ?

- A) 16.873 B) 9.488 C) 14.902 D) 11.143

- 15) Find the area to the right of 5.578 under the chi-square distribution with 11 degrees of freedom. _____
 A) 0.45 B) 0.9 C) 0.1 D) 1.35

16) A contingency table is made up of 8 rows and 4 columns. How many degrees of freedom are present? 16) _____
 A) 28 B) 32 C) 24 D) 21

17) The chi-square independence test can be used to test the independence of two variables. 17) _____
 A) False B) True

18) Chicken, hot dogs, and hamburgers were served during a recent barbecue. The host assumed that there would be no difference between what the women chose to eat and what the men chose to eat. Compute the test value for the following data. 18) _____

	Chicken	Hot Dogs	Hamburgers
Women	7	3	4
Men	4	5	6

A) 5.769 B) 1.596 C) 1.686 D) 4.140

19) Two allergists recorded the main area of allergy for new patients during a month. At $\alpha = 0.05$, test the claim that the allergy diagnosis and the doctor that treated the patients are independent. 19) _____

Allergies	Pollen	Food	Mold	Pets
Doctor 1	7	7	8	8
Doctor 2	26	7	10	24

- A) There is not evidence to reject the claim that the allergy diagnosis and the doctor are not related because the test value $5.908 < 7.815$
- B) There is evidence to reject the claim that the allergy diagnosis and the doctor are not related because the test value $7.815 > 5.908$
- C) There is evidence to reject the claim that the allergy diagnosis and the doctor are not related because the test value $15.507 > 1.980$
- D) There is not evidence to reject the claim that the allergy diagnosis and the doctor are not related because the test value $1.980 > 15.507$

Answer Key

Testname: HW12

- 1) A
- 2) B
- 3) B
- 4) B
- 5) B
- 6) B
- 7) B
- 8) C
- 9) A
- 10) D
- 11) A
- 12) B
- 13) A
- 14) C
- 15) B
- 16) D
- 17) B
- 18) C
- 19) A