



SCHOOL

1-In a chi-square test, the sample data are called observed frequencies.

A- true

B- false

2-One advantage of the chi-square tests is that they can be used when the data are measured on a nominal scale

A- true

B- false



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3-A chi-square test for goodness of fit is used to evaluate a hypothesis about how a population is distributed across three categories. If the researcher uses a sample of $n = 100$ participants, then the chi-square test will have $df = 99$

- A- true**
- B- false**



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4-The chi-square test for independence requires that each individual be categorized on two separate variables

- A- true**
- B- false**

5-For the chi-square test for goodness of fit, what is the value of df for a test with four categories and a sample of $n = 100$

- A- 96**
- B- 4**
- C- 3**
- D- 99**



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6-A researcher obtains a value of (-8.50) for a chi-square statistic. What can you conclude because the value is negative ?

- A- The observed frequencies are consistently larger than the expected frequencies**
- B- The researcher made a mistake. The value of chi-square cannot be negative**
- C-The expected frequencies are consistently larger than the observed frequencies**
- D-There are large differences between the observed and expected frequencies**



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7-A chi-square test for independence is used to evaluate the relationship between two variables. If one variable is classified into 4 categories and the other variable is classified into 2 categories, then the chi-square statistic will

Have:

A- $df = 6$

B- can not determine the df from the provided information

C- $df= 3$

D- $df= 8$



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8-The sample data for a chi-square test are called -----

- A- observed proportions**
- B- observed frequencies**
- C-expected proportions**
- D- expected frequencies**

9-The death rate from a particular form of cancer is 23% during the first year.

When treated with an experimental drug, only 15 out of 84 patients die during the initial year of treatment.

Is this strong evidence to claim that the new medication reduced the mortality rate?



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10-A study was conducted to determine the effectiveness of varying amounts of vitamin C in reducing the number of common colds.

A survey of 450 people provided the following information:

Daily amount of vitamin C taken	No colds	At least one	Total
None	57	223	280
500 mg	26	84	110
1000 mg	17	43	60
Total	100	350	450



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Is there evidence of a relationship between catching a cold and taking vitamin c?

- 1-what is the suitable statistical test for this study**
- 2- state H_0 and H_A**
- 3- $df=$**
- 4- Tab value for α and df**
- 5- equation for calculated value**



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11-Recently, students in a marketing research class were interested in the driving behavior of students. Specifically, the marketing students were interested if exceeding the speed limit was related to gender. They collected the following responses from 100 randomly selected students:

Gender	Speeds	Does not speed
Males	40	25
Females	10	25

- 1. The appropriate test to analyze the relationship between gender and education is:**
- a .regression analysis**
 - b .Analysis of variance**
 - c .Contingency table analysis**
 - d .Goodness-of-fit**



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2. The null hypothesis for the analysis is:

- a. There is no relationship between gender and speeding.**
- b. The correlation between gender and speeding is zero.**
- c. As gender increases, speeding increases.**
- d. The mean of gender equals the mean of speeding.**

3 .The degrees of freedom for the analysis is:

- a.1**
- b.2**
- c.3**
- d-4**

4. Using 0.05 as the significance level, what is the critical value for the test statistic?

- a.9.488**
- b.5.991**
- c.7.815**
- d.3.841**



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5. What is the value of the test statistic?

a. 100

b. 9.89

c. 50

d. 4.94

6. Based on the analysis, what can be concluded?

a. Gender and speeding are correlate

b. Gender and speeding are not relate

c. Gender and speeding are relate

d. No conclusion is possible.



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In school A , with 50 students , there was history of whooping cough in 25 students , while in school B with 350 students ,215 with history of whooping cough , α 0.01 . What this information means ?



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Disease X appeared in different occurrence this year in relation to season :

Winter 100

Spring 58

Summer 78

Autumn 95

If you know that disease X had no seasonal variation . By using $\alpha 0.01$, state your conclusion .



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A study was conducted on 100 persons, 20% of them were with scabies. 90% of those with scabies experienced itching in warm climate, while only 10% of the healthy persons had this complaint. Do these data provide sufficient association between scabies and itching in warm place?



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Three groups with 20 patients in each were administered analgesics A, B and C. Relief was noted in 20, 10 and 6 cases, respectively.

Is this difference due to the drug or by chance? Use α 0.01

1- suitable statistical test

2- assumption for this data

3- H_0 and H_A

4-df =

5- your decision and conclusion ,if Cal value=8.6