1. Chi-square tests are designed for which kind of data?

   ☐ a single proportion only

   ☐ measured means

   ☐ continuous data

   ☐ categorical counts

2. A fair die is rolled 60 times. What is the expected count for each face ($60 \times 1/6$)?

   _____

3. One category has observed 8, expected 10. Compute $(\text{observed} - \text{expected})^2/\text{expected}$.

   _____

4. Row total 60, column total 50, grand total 100. Find the expected count (row · col/grand).

   _____

5. You sample 100 boys and 100 girls SEPARATELY and compare favorite subject. This is a test of...

   ☐ homogeneity

   ☐ goodness-of-fit

   ☐ a mean

   ☐ independence

6. With $\chi^2 = 6.0$ at df $= 1$, the p-value ≈ 0.014. At $\alpha = 0.05$, the decision is...

   ☐ accept H0

   ☐ fail to reject H0

   ☐ double the p-value

   ☐ reject H0

7. One categorical variable checked against a claimed distribution (one sample) calls for a...

   ☐ test of homogeneity

   ☐ two-sample t-test

   ☐ test of independence

   ☐ goodness-of-fit test

8. A goodness-of-fit test involves how many categorical variables?

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   ☐ none

   ☐ one

   ☐ two

9. For a goodness-of-fit test with 6 categories, what are the degrees of freedom?

   _____

10. A large chi-square statistic is evidence against the claimed distribution.

    ☐ True ☐ False

1. **categorical counts**

   Chi-square compares counts in categories.

2. **10**

   $60 \times 1/6 = 10$.

3. **0.4**

   $(8-10)^2/10 = 4/10 = 0.4$.

4. **30**

   $60 \times 50 \,/\, 100 = 30$.

5. **homogeneity**

   Several separate samples compared on one variable → homogeneity.

6. **reject H0**

   $0.014 \leq 0.05$ → reject H0.

7. **goodness-of-fit test**

   One variable vs. a distribution → goodness-of-fit.

8. **one**

   GOF checks one variable against a claimed distribution.

9. **5**

   df = categories − 1 = 6 − 1 = 5.

10. **True**

    Big gaps → big χ^2 → evidence against H0.

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