1. Which of the followning is true about a chi-squared distribution?

(A) It is left skewed.

(B) It is right skewed.

(C) It is symmetric.

2. How does the mean of a chi-squared distribution change as the degrees of freedom increases?

(A) The mean stays the same.

(B) The mean decreases.

(C) The mean increases.

(D) None of the above.

In the country of B, about 55% of the population speaks D as their first language, about 40% speaks F, and the remaining 5% speaks some other language as their first language. You want to test the hypothesis H_0 that the national distribution of first languages matches the distribution of first languages of residents of the capital city of B, so you take a simple random sample of 50 residents of the capital city and ask each of them what their first language is.

3. Is it reasonable to conduct a chi-square test using this data to test H_0?

(A) Yes

(B) No

You want to test the hypothesis H_0 that gender identity and highest educational attainment are independent among Coloradans. You start with a simple random sample of 10 Coloradans and have them respond to a survey about their gender identity and educational attainments. Then, to each person who responds to the survey, you offer a $50 Amazon gift card if they recruit a Coloradan friend to respond to the same survey. This process continues until you've collected responses from 10,000 Coloradans.

4. Is it reasonable to conduct a chi-square test using this data to test H_0?

(A) Yes

(B) No

You want to test the hypothesis H_0 that height and highest educational attainment are independent among Coloradans. You collect data about height and educational attainment from a simple random sample of 10,000 Coloradans.

5. Is it reasonable to conduct a chi-square test using this data to test H_0?

(A) Yes

(B) No