

## 2003 AP<sup>®</sup> STATISTICS FREE-RESPONSE QUESTIONS

5. A random sample of 200 students was selected from a large college in the United States. Each selected student was asked to give his or her opinion about the following statement.

“The most important quality of a person who aspires to be the President of the United States is a knowledge of foreign affairs.”

Each response was recorded in one of five categories. The gender of each selected student was noted. The data are summarized in the table below.

|        | Response Category |                   |                            |                |                |
|--------|-------------------|-------------------|----------------------------|----------------|----------------|
|        | Strongly Disagree | Somewhat Disagree | Neither Agree nor Disagree | Somewhat Agree | Strongly Agree |
| Male   | 10                | 15                | 15                         | 25             | 25             |
| Female | 20                | 25                | 25                         | 25             | 15             |

Is there sufficient evidence to indicate that the response is dependent on gender? Provide statistical evidence to support your conclusion.

## 2004 AP<sup>®</sup> STATISTICS FREE-RESPONSE QUESTIONS

5. A rural county hospital offers several health services. The hospital administrators conducted a poll to determine whether the residents' satisfaction with the available services depends on their gender. A random sample of 1,000 adult county residents was selected. The gender of each respondent was recorded and each was asked whether he or she was satisfied with the services offered by the hospital. The resulting data are shown in the table below.

|               | Male | Female | Total |
|---------------|------|--------|-------|
| Satisfied     | 384  | 416    | 800   |
| Not Satisfied | 80   | 120    | 200   |
| Total         | 464  | 536    | 1,000 |

- (a) Using a significance level of 0.05, conduct an appropriate test to determine if, for adult residents of this county, there is an association between gender and whether or not they were satisfied with services offered by the hospital.
- (b) Is  $\frac{800}{1,000}$  a reasonable estimate for the proportion of all adult county residents who are satisfied with the services offered by this hospital? Explain why or why not.