

SAT数学

张斯乐



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◆ 2.Problem Solving & Data Analysis

2.6 Data Collection and Conclusions

1. 实验experiment和抽样调查sample survey的区别在于前者有分组而后者无，因此前者可以得到因果关系后者不可以。

*实验中加入volunteer等同于population到sample未随机抽取，所以结论只能适用这部分volunteer。

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◆ 2.Problem Solving & Data Analysis

2.6 Data Collection and Conclusions

2.抽样结论的得出要关注从population到sample的随机性和从sample到group的随机性：

*从population到sample的随机性：如果不是随机抽取，则根据样本得到的结论无法适用于总体。同时，sample从什么总体里抽取出来，最后的结论就只能回到那个总体里去，不可以推广及更大的范围。

*从sample到group的随机性：如果不是随机分配，则无法得出因果关系。

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3.实验分组间只能有一个变量的取值统一，否则出现两个及以上统一的不同特征就无法将结果的区别归结于其中一个变量。

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◆ 2.6 Data Collection and Conclusions

1. A polling agency recently surveyed 1,000 adults who were selected at random from a large city and asked each of the adults, "Are you satisfied with the quality of air in the city?" Of those surveyed, 78 percent responded that they were satisfied with the quality of air in the city. Based on the results of the survey, which of the following statements must be true?

1. Of all adults in the city, 78 percent are satisfied with the quality of air in the city.

2. If another 1,000 adults selected at random from the city were surveyed, 78 percent of them would report they are satisfied with the quality of air in the city.

3. If 1,000 adults selected at random from a different city were surveyed, 78 percent of them would report they are satisfied with the quality of air in the city.

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◆ 2.6 Data Collection and Conclusions

2. The members of a city council wanted to assess the opinions of all city residents about converting an open field into a dog park. The council surveyed a sample of 500 city residents who own dogs. The survey showed that the majority of those sampled were in favor of the dog park. Which of the following is true about the city council's survey?

- A. It shows that the majority of city residents are in favor of the dog park.
- B. The survey sample should have included more residents who are dog owners.
- C. The survey sample should have consisted entirely of residents who do not own dogs.
- D. The survey sample is biased because it is not representative of all city residents.

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◆ 2.6 Data Collection and Conclusions

3. A study was done on the weights of different types of fish in a pond. A random sample of fish were caught and marked in order to ensure that none were weighed more than once. The sample contained 150 largemouth bass, of which 30% weighed more than 2 pounds. Which of the following conclusions is best supported by the sample data?

- A. The majority of all fish in the pond weigh less than 2 pounds.
- B. The average weight of all fish in the pond is approximately 2 pounds.
- C. Approximately 30% of all fish in the pond weigh more than 2 pounds.
- D. Approximately 30% of all largemouth bass in the pond weigh more than 2 pounds.

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◆ 2.6 Data Collection and Conclusions

4. A market researcher selected 200 people at random from a group of people who indicated that they liked a certain book. The 200 people were shown a movie based on the book and then asked whether they liked or disliked the movie. Of those surveyed, 95% said they disliked the movie. Which of the following inferences can appropriately be drawn from this survey result?

- A. At least 95% of people who go see movies will dislike this movie.
- B. At least 95% of people who read books will dislike this movie.
- C. Most people who dislike this book will like this movie.
- D. Most people who like this book will dislike this movie.

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◆ 2.6 Data Collection and Conclusions

5. For the finale of a TV show, viewers could use either social media or a text message to vote for their favorite of two contestants. The contestant receiving more than 50% of the vote won. An estimated 10% of the viewers voted, and 30% of the votes were cast on social media. Contestant 2 earned 70% of the votes cast using social media and 40% of the votes cast using a text message. Based on this information, which of the following is an accurate conclusion?

A.If all viewers had voted, Contestant 2 would have won.

B.Viewers voting by social media were likely to be younger than viewers voting by text message.

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◆ 2.6 Data Collection and Conclusions

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C. If all viewers who voted had voted by social media instead of by text message, Contestant 2 would have won.

D. Viewers voting by social media were more likely to prefer Contestant 2 than were viewers voting by text message.

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作业讲解-第6题到第11题

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◆ 2.6 Data Collection and Conclusions

6. To determine the mean number of children per household in a community, Tabitha surveyed 20 families at a playground. For the 20 families surveyed, the mean number of children per household was 2.4. Which of the following statements must be true?

A. The mean number of children per household in the community is 2.4.

B. A determination about the mean number of children per household in the community should not be made because the sample size is too small.

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◆ 2.6 Data Collection and Conclusions

6. To determine the mean number of children per household in a community, Tabitha surveyed 20 families at a playground. For the 20 families surveyed, the mean number of children per household was 2.4. Which of the following statements must be true?

C.The sampling method is flawed and may produce a biased estimate of the mean number of children per household in the community.

D.The sampling method is not flawed and is likely to produce an unbiased estimate of the mean number of children per household in the community.

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◆ 2.6 Data Collection and Conclusions

7. Researcher in Australis carried out an experiment to determine if the color of a coffee mug affected how people rate the flavor intensity of the coffee. Volunteers were randomly assigned to taste coffee in mugs that differed only by color: some white and some clear. The same type of coffee was used in both mugs. The researcher concluded that the mean flavor intensity rating was significantly higher for those who drank coffee in a white mug than for those who drank coffee in a clear mug. Based on this study, which of the following statements is correct?

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◆ 2.6 Data Collection and Conclusions

8. To determine if age and gender are related to pet ownership at his school, Mark selected a random sample of 50 male 14 to 15 year old students from the school and a random sample of 60 female 17 to 18 year old students from the school. For each student, he recorded the student's age, gender, and whether the student owned a pet. Which of the following provides the best explanation for why Mark cannot draw a valid conclusion from this study?

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◆ 2.6 Data Collection and Conclusions

9. At a large college, of the students workings toward a degree in English, 250 were selected at random and asked how many books on average they read each month. The results of this survey can be best generalized to which of the following populations?

- A.All students at the same large college
- B.Ant sample of 250 students at the same large college
- C.All students working toward a degree in English at any college
- D.All students working toward a degree in English at the same large college

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◆ 2.6 Data Collection and Conclusions

10. To determine if cooking with olive oil reduces the risk of heartburn for men, researchers interviewed a random sample of 5,500 men who had no history of heartburn. Study participants were identified as either regular or occasional olive oil users. Five years later, researchers interviewed the men again. They found that the proportion of men who experienced frequent heartburn was significantly lower for men identified as regular olive oil users. Which of the following is the most appropriate conclusion of the study?

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◆ 2.6 Data Collection and Conclusions

11. To determine whether residents of community would vote in favor of a ballot proposal to use \$100,000 of local taxes for additional playground equipment at a community park, Jennifer surveyed 60 adults visiting the park with their children during one week in June. She found that 45 of those surveyed reported that they would vote in favor of the proposal. Which of the following statements must be true?

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