13. A chef at a restaurant that serves about 1200 customers a week introduces a dish at a special discounted price on a Wednesday night. Out of the 110 total customers that night, 45% order the dish. Because the dish sold so well, the chef decides to add it to the menu at full price. Did the chef make a good decision? Why or why not?

PRACTICE AND PROBLEM SOLVING

Identify the population and the sample.

14. The manager of a department store wants to know how the shoppers at the store learned about the store's one-day sale. He asks 50 randomly chosen customers.

15. A family wants to know the average number of pieces of junk mail they receive each day. They count the pieces of junk mail that they receive each day for a week and find the average.

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Online Extra Practice

Decide whether the sampling method could result in a biased sample. Explain your reasoning.

16. On the first day of school, all of the incoming freshmen attend an orientation program. The principal wants to learn the opinions of the freshmen regarding the orientation program. He decides to ask the first 25 freshmen that he sees.

17. The manager of an apartment building wants to know if the residents are satisfied with his service. He writes each apartment number on a piece of paper and places the pieces of paper in a hat. Then he randomly chooses 10 apartment numbers and asks the residents of the 10 apartments about his service.

18. The members of the school drama club want to know how much students are willing to pay for a ticket to one of their productions. They decide that each member of the drama club should ask five of his or her friends what they are each willing to pay.

19. The manager of a city bus system wants to know if the people who ride the buses are satisfied with the service. She decides to post mail-in surveys on each of the city's buses.

20. A writer for a travel magazine wants to learn tourists' opinions about the nightlife in a city. She decides to visit some of the tourist attractions in the city on a Thursday morning. She plans to ask the first 50 tourists she meets for their opinions.

H.O.T. 21. Write About It Administrators at your school want to know if more vegetarian items should be added to the lunch menu. They want to find out how many students are vegetarians. Give an example of one sampling method that could result in a biased sample, and one that is not likely to result in a biased sample. Explain your reasoning.

In exercises 22–25, determine whether the results of the survey are likely to be representative of the population in the following situation. Explain.

A marching band at a school is trying to decide whether having a bake sale or a raffle during a football game will earn more money for a field trip.

22. Ask every tenth person in the cafeteria at lunch on a school day whether he or she would be more likely to buy a baked good or a raffle ticket.