

Lesson 1-1

Example 1

ENTERTAINMENT Which reflects the systematic sampling method that a video rental store owner might use to find out what changes the store might make in the selection of movies it offers in order to satisfy its customers?

- A. Ask all the customers who check out movies on one Friday evening.
- B. Mail a questionnaire to the 100 customers who have rented the most movies from the store over the past month.
- C. Ask the first person who enters the store every hour throughout a week.

Solution

Choice C. By distributing the survey across all hours that the store is open and asking customers who comes into the store, whether or not they check out movies, the owner should be able to obtain a random sampling of customers.

Example 2

EDUCATION The chairperson of the foreign languages department at a high school has obtained special funding to offer classes in an additional language next year. She would like to know which language not currently offered at her school would attract the largest enrollment. Since Spanish is the foreign language with the greatest current enrollment, she decided to have all students currently enrolled in Spanish classes fill out a questionnaire about their interests in studying languages not currently offered at the high school.

- a. What kind of sampling does this situation represent?
- b. What might be an advantage of this kind of sampling?
- c. What might be a disadvantage of this kind of sampling?

Solution

- a. This example represents cluster sampling.
- b. An advantage is that it is easy to identify students enrolled in Spanish classes and it would be easy to administer the questionnaire in these classes.
- c. Students studying Spanish probably don't represent the school as a whole. To achieve a more representative sample, she should include students studying languages other than Spanish and those not currently studying any foreign language.

Example 3

FINANCE Mr. and Mrs. Robbins are looking for a mortgage for a house they want to buy. For a 30-year fixed mortgage for the amount they plan to borrow, five lenders offered them loans with the monthly payments shown in the table. (These monthly payments cover principal and interest only.)

Lender	Monthly Payment
A	\$875
B	\$925
C	\$862
D	\$903
E	\$887

Which lender offers the lowest mortgage interest rates?

Solution

The principal to be repaid over the life of the loan is the same for all lenders. Lender C has the lowest monthly payment, so it offers the lowest mortgage interest rate.