

Pearson(Statistics)

1. Determine whether the study depicts an observational study or an experiment.

A study is conducted to determine if there is a relationship between brain cancer and use of cell phones.

Doctors ask patients with brain cancer about their use of cell phones.

Answer: The study is observational study because the study examines individuals in a sample, but does not try to influence the response variable.

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2. Five state officials are listed to the right.

- a. List the 10 possible samples (without replacement) of Size that can be obtained from the population of five officials.

Governor (G) Secretary of State (S) Attorney General (A) Representative (R) Press Secretary (P)
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- b. If a simple random sampling procedure is used to obtain a sample of two officials, what are the chances that it is the first sample on your list in part (a)? the second sample? the tenth sample?

Answer: List all 10 possible samples (without replacement) of size 2

Use the letter abbreviation for each official.

GD,GA,GR,GP,SA,SR,SP,AR,AP,RP

What is the chance that the first sample in your list is selected?

1/10

What is the chance that the second sample in your list is selected?

1/10

What is the chance that the tenth sample in your list is selected?

1/10

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3. A magazine publisher mails a survey to every subscriber asking about the timeliness of its subscription service. The publisher finds that only 4% of the subscribers responded. This 4% represents what?

Answer: The sample.

4. A computer network manager wants to test the reliability of some new and expensive fiber-optic Ethernet cables that computer department just received. The computer department received 4 boxes containing 20 cables each. The manager does not have the time to test every cable in each box. The manager will choose one box at random and test 4 cables chosen randomly within that box. What is the sample?

Answer: The 4 cables chosen for testing.

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5. The table below shows the number of homicides in the U.S in each of the years 1989-1993.

Murder and non-negligent manslaughter

Year	Number of offenses
1989	21,500
1990	23,440
1991	24,700
1992	23,760
1993	24,530

Classify the study as either descriptive or inferential.

Answer: The study is descriptive.

6. Identify the study as an observational study or a designed experiment.

An educational researcher used school records to determine that, in one school district, 84% of children living in two-parent homes graduated high school while 75% of children living in single-parent homes graduated high school.

Answer: Observational study.

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7. Identify the study as an observational study or a designed experiment.

A clinic gives a drug to a group of ten patients and a placebo to another group of ten patients to find out if the drug has an effect on the patients' illness.

Answer: Designed experiment

8. List all possible samples from the specified population.

The six members of a board of directors are

Sam (S),

Laurie (L),

Peggy (P),

Jorges (J),

Max (M),

and

Claude (C).

Consider these board members to be a population of interest. List the 15 possible samples



(without replacement) of size four from this population of six board members

Answer: S,L,P,J S,L,P,M S,L,P,C S,L,J,M S,L,M,C S,P,J,M S,P,J,C S,P,M,C
S,J,M,C L,P,J,M L,P,J,C L,P,M,C L,J,M,C P,J,M,C

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9. The finalists in an essay competition are

Lisa (L), Melina (M), Ben (B), Danny (D), Eric (E), and Joan (J).

Consider these finalists to be a population of interest. The possible samples (without replacement) of size two that can be obtained from this population of six finalists are as follows

L,M L,B L,D L,E L,J M,B M,D

M,E M,J B,D B,E B,J D,E D,J E,J

If a simple random sampling method is used to obtain a sample of two of the finalists, what are the chances of selecting Lisa and Danny?

Answer: There are total 15 samples where only one sample is that where Lisa and Danny will be selected.

So, the chance is $\frac{1}{15}$.

10. From a group of 496 students, every 49th student starting with the 3rd student is selected.

Identify the type of sampling used in this example.

- A. Simple random sampling
- B. Cluster sampling
- C. Stratified sampling
- D. Systematic random sampling



Answer: Systematic random sampling

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