

How Much Do Fans Love Justin Timberlake?

JT's concert promoter wants to find out how much fans enjoy the concerts. He will ask fans, "From 1 to 100, where 100 is the most, how much did you enjoy the concert?" The section he wants to survey has 50 seats (5 rows x 10 columns). The stage runs along the northern edge of the venue (where Justin is pictured). He wants to take a sample of 10 seats.

1. Method #1:

Take a simple random sample (SRS) of 10 fans. Explain below the steps you used to obtain an SRS.

[illegible]

2. Method #2:

Randomly choose 2 fans from each horizontal row.

[illegible]

3. Method #3:

Randomly choose 1 fan from each vertical column.

[illegible]

Different sampling methods

4. Which method do you think is best? Why?



5. Now, it's time for the actual data. For each of your samples on the previous page, calculate the average enjoyment.

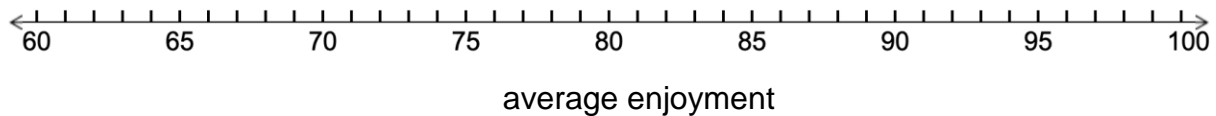
92	89	90	88	95	100	98	93	95	84
82	86	90	88	86	91	90	89	85	83
80	74	80	67	81	82	76	77	74	65
72	68	74	73	70	69	72	70	68	67
69	67	68	68	64	66	63	63	70	68

Sample #1: Average =

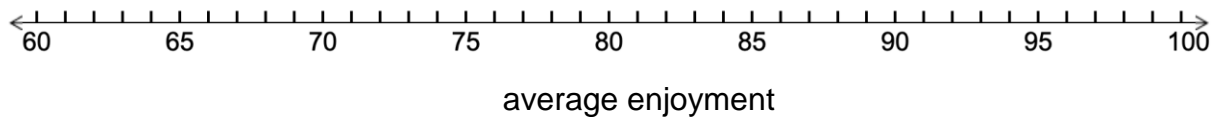
Sample #2: Average =

Sample #3: Average =

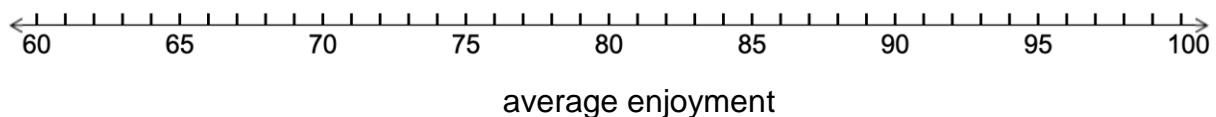
Method #1: SRS



Method #2: Stratify by Row



Method #3: Stratify by Column



Different sampling methods

Important Ideas:

Steps: Label, Randomize, Select

➤ SRS (_____)

Choosing a group from a population so that every individual and group of individuals is is likely to be chosen.

➤ Stratified random sampling:

Splits population into groups (_____) and chooses an _____ from each strata.

➤ Cluster sampling:

Splits population into groups and randomly select groups.

Check Your Understanding:

To score the AP Statistics Exams ETS hires Exam Readers, Table Leaders, and Other Leadership. Each reading room consists of 16 Exam Readers and 2 Table Leaders. There are 100 reading rooms. The 18 members of Other Leadership work together in a room.

- a. Describe how to select a stratified random sample of 36 people hired by ETS to score the AP Statistics Exams. Explain your choice of strata.

- b. Describe how to select a cluster sample of 36 people hired by ETS to score the AP Statistics Exams. Explain your choice of clusters.

- c. Explain a benefit of using a stratified random sample and a benefit of using a cluster random sample in this context.

Different sampling methods

An apartment building has nine floors and each floor has four apartments. The building owner wants to install new carpeting in eight apartments to see how well it wears before she decides whether to replace the carpet in the entire building.

The figure below shows the floors of apartments in the building with their apartment numbers. Only the nine apartments indicated with an asterisk (*) have children in the apartment.

11* 1st Floor 14	12 13	21 2nd Floor 24	22* 23*	31 3rd Floor 34	32 33
41 4th Floor 44	42 43	51* 5th Floor 54	52 53	61 6th Floor 64	62 63
71 7th Floor 74*	72 73*	81 8th Floor 84*	82 83	91 9th Floor 94	92* 93*

* = Children
in the
apartment

- a. For convenience, the apartment building owner wants to use a cluster sampling method, in which the floors are clusters, to select the eight apartments. Describe a process for randomly selecting eight different apartments using this method.

- b. An alternative sampling method would be to select a stratified random sample of eight apartments, where the strata are apartments with children and apartments with no children. A stratified random sample of size eight might include two randomly selected apartments with children and six randomly selected apartments with no children. In the context of this situation, give one statistical advantage of selecting such a stratified sample as opposed to a cluster sample of eight apartments using the floors as clusters.