## How Much Do Fans Love Justin Timberlake? Day 1

Justin Timberlake'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 $\times 10$ 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.


## 2. Method \#2:

Randomly choose 2 fans from each horizontal row.

3. Method \#3:

Randomly choose 1 fan from each vertical column.

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. Add your average to the dotplots on the board.

Sample \#1:

Sample \#2:

Sample \#3:

| 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 |

## Method \#1: SRS



## Method \#2: Stratify by Row



Method \#3: Stratify by Column


## Other Random Sampling Methods Day 1

Important Ideas:

## 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.

