

Sampling Example

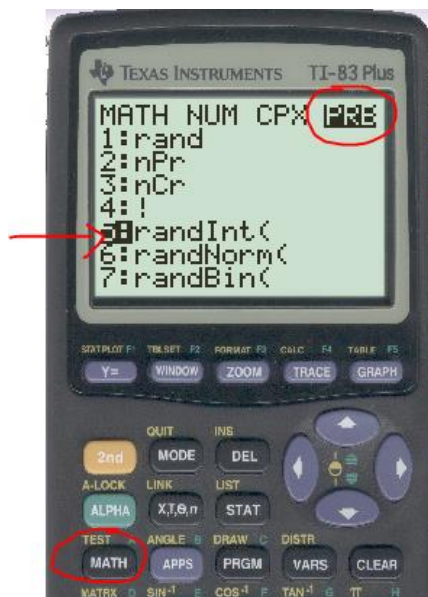
The following table shows names of students arranged by what math class they are taking and their major.

	Algebra	Statistics	Trigonometry
Engineering	Gerrick Kristen	Matthew Adrienne Sandra Carolina Saj Bao	Brandon Connor Evandell Joanna
Health Sciences	Coreen Roneliz James Heather	Yessica Kristal David Kristy Tatiana	Daniel Sarah Spencer
Business	Ashley Juan Katrina	Brittany Jennifer Ketta Caitlin	Eddie Lyna Minh
Psychology	Krista Calvin Nolan	Linh Jordan Klarissa	Andrew Lena Robert Blaine Abolaji

I. SIMPLE RANDOM SAMPLE: Pick a simple random sample of 10 students

Describe the Procedure:

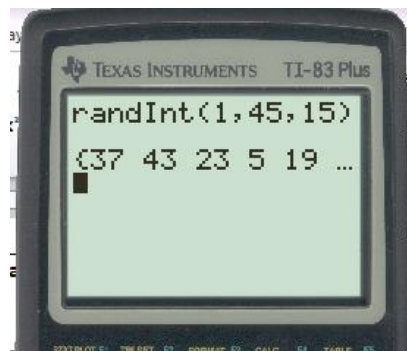
1. Number each student (see table below)
2. Use a random number generator to list 10 different random numbers from 1 to 45
I used the Ti83 calculator. Click on MATH then use the right arrow to scroll to PRB, then choose #5 randInt(



3.

Hit ENTER. Then type 1,45,10

This means that you are generating 10 random numbers between 1 and 45. Use the left/right arrows to scroll and see all the random values.



I actually generated 15 random values because there might be repeats and I need to discard any repeat values.

This generates the random values: **37, 43, 23, 5, 19, 30, 16, 33, 1, 18**

4. Look at the list of student in the table below and write down the ones labeled with the numbers above.

List the 10 students

- | | |
|------------|-------------|
| 1. Spencer | 6. Klarissa |
| 2. Robert | 7. Carolina |
| 3. Tatiana | 8. Evandell |
| 4. James | 9. Gerrick |
| 5. Yessica | 10. Bao |

	Algebra	Statistics	Trigonometry
Engineering	1. Gerrick 2. Kristen	13. Matthew 14. Adrienne 15. Sandra 16. Carolina 17. Saj 18. Bao	31. Brandon 32. Connor 33. Evandell 34. Joanna
Health Sciences	3. Coreen 4. Roneliz 5. James 6. Heather	19. Yessica 20. Kristal 21. David 22. Kristy 23. Tatiana	35. Daniel 36. Sarah 37. Spencer
Business	7. Ashley 8. Juan 9. Katrina	24. Brittany 25. Jennifer 26. Ketta 27. Caitlin	38. Eddie 39. Lyna 40. Minh
Psychology	10. Krista 11. Calvin 12. Nolan	28. Linh 29. Jordan 30. Klarissa	41. Andrew 42. Lena 43. Robert 44. Blaine 45. Abolaji

II: SYSTEMATIC SAMPLE: Pick a systematic sample of 10 students

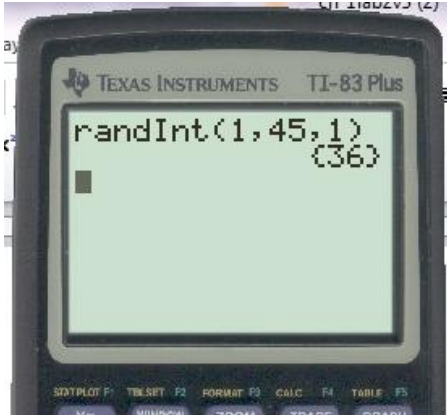
Describe the Procedure:

1. Number each student (see table above)
2. Use a random number generator to pick your starting point. One number between the values of 1 to 45.

I used the Ti83 calculator. Click on MATH then use the right arrow to scroll to PRB, then choose #5 randInt(

Hit ENTER. Then type 1,45,1

I got the number **36**. This is the starting value.



3. Figure out the frequency for picking numbers. To do this divide:
Number of students in total / Number of students you want in the sample = $45/10 = 4.5$
We should pick every 4th value starting with the value of 36.
When you get to the end of the list go back to the beginning to get all the values you need.
4. In this way I get the list of values: **36, 40, 44, 3, 7, 11, 15, 19, 23, 27**
5. Look at the list of student in the table above and write down the ones labeled with the numbers above.

List the 10 students:

- | | |
|-----------|-------------|
| 1. Sarah | 6. Calvin |
| 2. Minh | 7. Sandra |
| 3. Blaine | 8. Yessica |
| 4. Coreen | 9. Tatiana |
| 5. Ashley | 10. Caitlin |

III. STRATIFIED SAMPLE BY MATH Class: Pick a stratified sample, by type of math class, of 12 students with equal representation from each stratum.

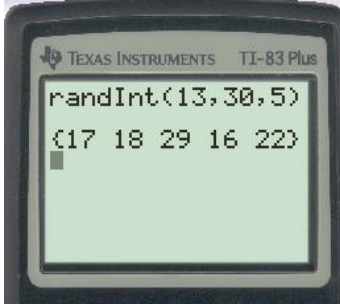
Describe the Procedure:

1. This means that we need to pick four random students from each column.
2. Use a random number generator to get 4 random numbers from the first column.
3. I used the Ti83 calculator. Click on MATH then use the right arrow to scroll to PRB, then choose #5 randInt(
Hit ENTER. Then type 1,12,5
I used 1 to 12 because the numbers in the first column go from 1 to 12. I asked the calculator to generate 5 values instead of 4 just in case there are repeats.



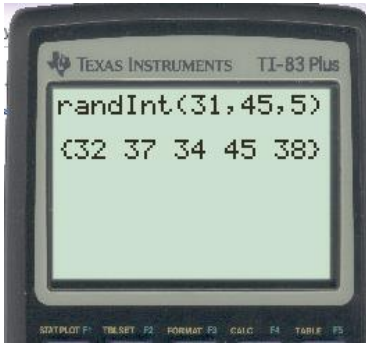
We need students from the first column that have numbers: **6,4,9,12**

- Use a random number generator to get 4 random numbers from the 2nd column.
I used 13 to 30 because the numbers in the second column go from 13 to 30. I asked the calculator to generate 5 values instead of 4 just in case there are repeats.



We need students from the second column that have numbers:
17,18,29,16

- Use a random number generator to get 4 random numbers from the 3rd column.
I used 31 to 45 because the numbers in the third column go from 31 to 45. I asked the calculator to generate 5 values instead of 4 just in case there are repeats.



We need students from the third column that have numbers:
32,37,34,45

- Look at the list of student in the table above and write down the ones labeled with the numbers above.

List the 12 students:

- | | | |
|------------|-------------|-------------|
| 1. Heather | 5. Saj | 9. Connor |
| 2. Roneliz | 6. Bao | 10. Spencer |
| 3. Katrina | 7. Jordan | 11. Joanna |
| 4. Nolan | 8. Carolina | 12. Abolaji |

IV. **STRATIFIED SAMPLE BY Major:** Pick a stratified sample, by city, of 12 students with equal representation from each stratum.

Describe the Procedure:

- This means that we need to pick three random students from each row
- Use a random number generator to get 3 random numbers from the first row.
You don't need to renumber the students.
- I used the Ti83 calculator. Click on MATH then use the right arrow to scroll to PRB, then choose #5 randInt(
Hit ENTER. Then type 1,45,45
I used all 45 students and picked the first 3 values that I found in the first row.
13, 32, 1

4. Use a random number generator to get 3 random numbers from the second row.
37, 5, 4
5. Use a random number generator to get 3 random numbers from the third row.
38, 39, 7
6. Use a random number generator to get 3 random numbers from the fourth row.
12, 11, 45

List the 12 restaurants:

- | | | |
|------------|------------|-------------|
| 1. Matthew | 2. Connor | 3. Gerrick |
| 4. Spencer | 5. James | 6. Ronilez |
| 7. Eddie | 8. Lyna | 9. Ashley |
| 10. Nolan | 11. Calvin | 12. Abolaji |

V. CLUSTER SAMPLE : Pick a cluster sample of students from one major. The number of students will vary.

Describe the Procedure:

1. I need to choose one major randomly. I label each major with a number: Engineering (1), Heath Sciences (2), Business (3), Psychology (4)
2. Use a random number generator to choose one value out of 1 through 4.
3. I used the TI83 to get: **3**
4. No write down all students from major 3.

List the students

- | | |
|-------------|------------|
| 1. Ashley | 6. Ketta |
| 2. Juan | 7. Kaitlin |
| 3. Katrina | 8. Eddie |
| 4. Brittany | 9. Lyna |
| 5. Jennifer | 10. Minh |