



Problem 1 – Empty or Full Seat

Airlines routinely overbook flights to ensure that as many seats as possible are full for each flight. They overbook because they expect a certain percent of people to not show up for their assigned seat.

In this problem, you will explore the number of seats to sell to book a full flight. The flight has 25 seats and historically 20% of people do not show up for the flight.

1. Set up the random number generator. Enter the number given by your teacher. Then press **STO** **MATH** **▸** **▸** **ENTER** **ENTER**.

2. On the Home screen, enter the function shown at the right.

Press **MATH** **▸** **▸** **2** to enter **randInt**.

```
randInt(1,10,25)
→L1
```

3. Explain in words what the function is calculating. _____

4. Look at the list in L1 (press **LIST**) and write down your numbers.

5. Go back to the Home screen and sort your list in ascending order. Press **2nd** **LIST** **▸** **ENTER** **2nd** **LIST** **1** **ENTER**. Write your ordered list here.


```
SortA(L1) Done
```

6. Since there is a 20% change of randomly getting a 1 or a 2, let these represent someone not showing for the flight. In your list, how many people did not show up for the flight? _____

7. How many people in your class had a full flight? _____

8. Repeat the steps in Questions 2 and 5 four additional times (for 5 flights total). Were any of your flights full? _____

9. How many empty seats were on each flight? _____

10. How many seats do you think you might need to sell to ensure the flight is full each time? Explain. _____

Problem 2 – Oversold Seats

Now, you will see how many tickets should be sold to help ensure a full flight.

11. Modify the function in Question 2 to generate 50 random numbers. Instead of sorting the list, this time count from the top of the list and see how many numbers you count before you have a “full” flight. Remember 1s and 2s indicate a person that did not show up.

How many tickets needed to be sold for the flight to be full? _____

12. Repeat four more times (for a total of 5 flights including Question 11). How many tickets were needed for each flight?

Flight 2? _____ Flight 3? _____

Flight 4? _____ Flight 5? _____

13. How do the numbers of tickets sold for your flights compare to others in the class?

14. If you ran the company, how many extra seats would you sell to ensure that the flight is full each time? Explain.

15. What if the no-show rate was 30%? How many seats would then need to be sold to ensure the flights are full each time?

