

**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.

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**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?

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