A certain airplane has 6 first class seats and a large number of coach seats. They have sold seven first class tickets and seven more coach tickets than there are coach seats. Each first class passenger has a 15% chance of being a no-show independent of any other passenger. The "expected" number of coach no-shows is eight.

1. Write the name of the probability distribution you would use to model the number of first class no-shows?

2. Write the symbols and numeric values for the two parameters of the distribution in Question 1 in the spaces provided, in the from symbol = value.

3. Write the mean and variance of the distribution in Question 1.

Ideally you might want to use the same distribution type for coach as for first class, but since the number of coach seats is large you can use another distribution type as an approximation.

4. Write the name of the distribution that approximately models the coach no-shows.

5. Write the symbol and numeric value for the one parameter of the distribution in Question 4, in the from symbol = value.

6. Write the mean and variance of the distribution in Question 4.

I have a coach ticket, but I'd rather fly first class. If I am first in line for a standby upgrade, I can fly first class if the number of first class no-shows is 2 or more. What is my chance of flying first class?

If there are fewer than seven coach no-shows the airline will call for volunteers to give up their seats in exchange for a guaranteed first class seat on the next flight plus a free tickets to use later. What is the probability this will happen?
9. A 12 passenger shuttle bus takes passengers from one part of the airport to another every 10 minutes. If there are more than 12 passengers waiting when the bus arrives, they are transported by car. Suppose passengers arrive independently at an average rate of 1 per minute (10 per 10 minutes). Write the name of the distribution you would use to model the number of passengers waiting for the bus when it arrives.

10. ______ = _______ Write the symbol and numeric value for the one parameter of the distribution in Question 9, in the from symbol = value.

11. mean = ________, variance = ________ Write the mean and variance of the distribution in Question 9.

12. ________________ What proportion of the trips require a car in addition to the bus?

13. ________________ Suppose 10% of all suitcases are accidentally sent to the wrong destination, independently of any other suitcases or which flight they are on. I checked two suitcases on my flight. Write the name of the probability distribution to model how many of my two suitcases were misdirected.

14. _____ = ________, _____ = ________ Write the symbol and numeric value for the two parameters of the distribution in Question 13 in the from symbol = value.

15. mean = ________, variance = ________ Write the mean and variance of the distribution in Question 13.

16. ________________ What is the probability that both my suitcases went to the correct destination?

17. ________________ The airline announces that 100 suitcases were checked on my flight but ten of those suitcases were accidentally sent to the wrong destination. Two of the 100 suitcases were mine. Write the name of the probability distribution to model how many of my two suitcases were misdirected.

18. _____ = ________, _____ = ________, _____ = ________ Write the symbol and numeric value for the three parameters of the distribution in Question 17.

19. ________________ What is the probability that both of my suitcases went to the correct destination?

20. ________________ The average time it takes to be served in the airport restaurant is 15 minutes. Write the name of the distribution you would use to model the length of time taken to be served.