

---

**Probability Theory: Activity 3**

Name: \_\_\_\_\_

1. A coded message from a CIA operative to his Russian KGB counterpart is to be sent in the form Q4ET, where the first and last elements of each block are consonants, the second is an integer 1 to 9, and the third is one of the six vowels. If all blocks are equally likely, what is the probability that a randomly intercepted block begins and ends with the same letter?
2. The board of a large corporation has seven members - 4 right-handed and 3 left-handed - willing to be nominated for office. If they need a president, vice president, and treasurer, what is the probability that the treasurer and president are left-handed and the vice president is right-handed?
3. A pastry in a vending machine cost 85 cents. You pay for it with two (identical) quarters, three (identical) dimes, and one nickel. If you put the coins in randomly, what's the probability that you put in the two quarters first?
4. There are 16 basketball players on a team, six guards, seven forwards, and three centers. They carpool to a game, randomly getting in two vans, with 9 of the players in one van and 7 in the other. What is the probability that the 9 person van has three guards, four forwards, and two centers?