PM-3. You will need to work in a team of four. Have one person act as recorder while the other three act as players.

a) List the names of the people in your team alphabetically. The first person on the list is player A, the next is player B, the third is C, and the fourth is the recorder. Write down who has each role.

b) Play "Rock - Paper - Scissors" at least 20 times. Each time all three players match, player A gets one point. Each time two of the three players match, player B gets a point. If none of the players match, then player C gets a point. Record the players points.

c) If you could choose to be any player, A, B, or C, which would you choose? As a team, prepare a justification for your choice. A tree model might help, or you may just want to make a well-organized list.

d) What is the probability that A will win? B? C?

A= B= C=

Names:

A

B

C

Score box (tallies)

A total =

B total =

C total =

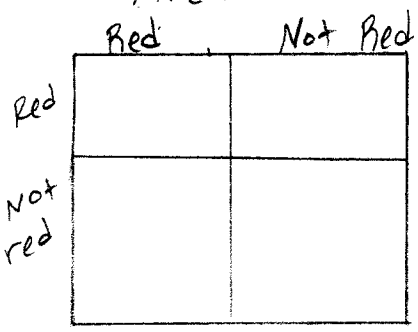
PM-30. A Nevada roulette wheel has 38 slots numbered 00, 0, 1, 2, 3, ..., 36. Eighteen of the numbers 1, 2, ..., 36 are red and 18 are black; 0 and 00 are green.

a) What is the probability of landing on red?

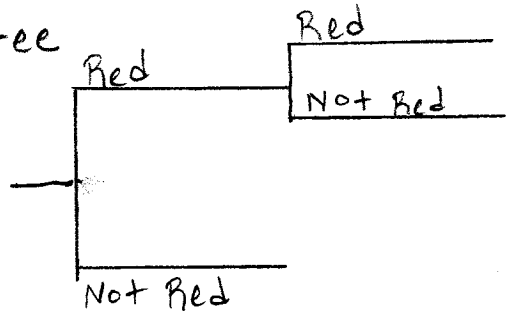
b) What is the probability of not landing on red?

c) The bettor put his money on red twice in a row. Use an area or a tree diagram to show how to find the probability that he won both bets.

Area



Tree



PM-40. Suppose you roll two dice, one red and one blue, and get a sum of 10.

a) List the different ways this can occur.

b) Sketch an area diagram and shade these possibilities.

c) What is the probability of getting a sum of 10?

d) Suppose you know the sum is 10 but not what is on each die. Explain why the probability that you rolled two 5's would be $\frac{1}{3}$.

b)

Die 2 (Blue) \ Die 1 (Red)	1	2	3	4	5	6
1	2	3				
2	3					
3						
4						
5						
6						

PM-41. Suppose you roll two dice and the sum is more than 8.

a) Shade the squares on an area diagram where this outcome could occur.

b) What is the probability that both dice show the same number?

c) What is the probability that exactly one 6 is showing?

d) What is the probability that at least one 5 is showing?

Die 2 \ Die 1	1	2	3	4	5	6
1	2	3				
2	3					
3						
4						
5						
6						

PM-42. A spinner comes up blue, red, and green with a probability of $\frac{1}{3}$ for each color.

a) Sketch an area diagram for spinning twice.

b) Shade the region on your area diagram that corresponds to getting the same color twice.

c) What is the probability that both spins give the same color?

d) If you know that you got the same color twice, what is the probability the color was blue?

PM-43. A spinner comes up red 25% of the time and green 25% of the time. The rest of the time it lands on blue.

a) Draw an area diagram for spinning twice, and shade the region on your area diagram corresponding to getting the same color twice. A neat and accurate diagram on this problem will help in understanding the next several problems. What are the dimensions of the whole diagram?

b) What is the probability that both spins give the same color?

c) If you know that you got the same color twice, what is the probability the color was blue?