

Leave your fractions unreduced. Proofread your written answers. Circle your numerical answers.

1. The following table is a proposed probability model for pulling one marble out of a bag of marbles. Is it a valid one? How do you know?

Outcome	red	black	blue	green
Probability	.4	-.2	.2	.6

2. I have a deck of 52 poker cards. There are four suits; they are diamonds, hearts, clubs, and spades. The diamonds and hearts are red; the clubs and spades are black. Each suit has an Ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, Jack, Queen, and King. Answer the following questions.

a.) If I pull one card out of the deck, what is the probability that it is black?

b.) If I pull one card out of the deck, what is the probability that it is a red Queen?

c.) If I pull one card out of the deck, what is the probability that it is **not** a red Queen? Use your answer to part b and your knowledge of probability to answer this question. Show work.

3. Rodger has a 56 % chance of making a hockey penalty goal. He has the opportunity to take two shots. Assume the shots are independent. What is the probability that he makes both shots?

4. In the previous question, why did it matter that the two shots were independent? In other words, what were you able to do because they were independent?

5. I have a bag of nine marbles. It contains three red, four blue, one green, and one black marble. If I choose one marble from the bag, what is the probability that it is blue or red?

6. You roll two distinguishable dice. What is the probability that you roll a pair (for instance, two ones or two fives)?

7. A certain raffle has .023 probability of winning. What is the probability of losing?

8. Maria and John are going to have three children. Write down the sample space for their three children. (For example, one possibility is GGB, meaning they have two girls followed by a boy.) Assume all arrangements are equally likely.

9. Using your sample space for Maria and John's children, what is the probability that they have either all boys or all girls? Circle these outcomes in the previous question's answer.

10. You will use the random number table to simulate rolling a 4-sided die that has the following probability model. Follow the steps below.

Outcome	1	2	3	4
Probability	.2	.3	.3	.2

a.) Assign digits from the table to represent each outcome. Make it clear which digits represent which outcome.

b.) Simulate rolling the die ten times. Write down the numbers from the random number table as you get them.

c.) What is your experimental probability of rolling a 4?