

Introduction to Probability

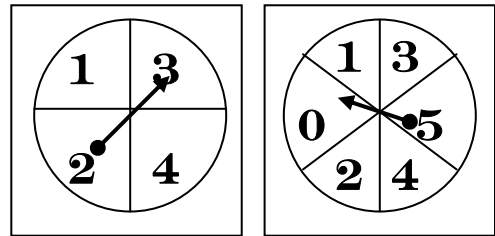
[1] A bag contains 15 white, 7 blue, and 2 red marbles. ONE marble is chosen at random...

[1a] Find the probability that a white marble is chosen. _____ = _____ = _____ %

[1b] Find the probability that a blue marble is chosen. _____ = _____ = _____ %

[1c] Find the probability that a red marble is NOT chosen. _____ = _____ = _____ %

[2] These two spinners are each spun once. Answer each of the following.



[2a] Create a sample space for the sum of the two spinners.

[2b] Find the probability that a sum of 6 is spun _____ = _____ = _____ %

[2c] Find the probability that a sum of more than 3 is spun _____ = _____ = _____ %

[2d] Find the probability that a sum of 4 or 5 is not spun _____ = _____ = _____ %

[3] Construct a stem and leaf plot for this set of data, then use it to determine each of the following experimental probabilities...



<u>Homework Quiz Scores</u>			
25	20	12	6
23	23	22	30
23	30	21	18
12	28	23	27
17	18	24	21

[3a] What is the probability that a student chosen at random passes (18 or better) this homework quiz? _____ = _____ = _____ %

[3b] What is the probability that a student chosen at random will have a score equal to the mode? _____ = _____ = _____ %

[4] Answer each of the following problems, involving a standard 52 card deck of playing cards.

[4a] What is the theoretical probability that you pick a face card (J, Q, or K) from this deck of cards? _____ = _____ = _____ %

[4b] Suppose you pick a card 20 times (replacing the card in the deck afterwards), and the results are shown at right. What is the experimental probability that you pick a face card (J, Q, K)?

5♣	7♥	5♥	K♦
Q♥	3♣	J♣	10♠
2♠	10♥	9♦	Q♣
A♠	Q♦	4♦	7♠
10♦	8♥	J♠	9♠

[5] A machine contains ping-pong balls numbered from 1 to 60, from which one is chosen at random. Find the probability of each of the following events, as a ratio, decimal, and percent.

[5a] A multiple of 5 is chosen _____ = _____ = _____ %

[5b] A multiple of 6 is chosen _____ = _____ = _____ %

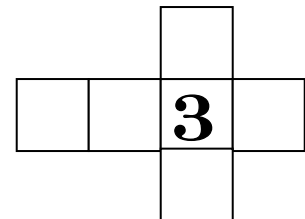
[5c] A multiple of 5 or a multiple of 6 is chosen _____ = _____ = _____ %

[6] Answer each of the following questions, like those found on the NJ ASK State Test.

[6a] Multiple Choice – circle the letter of the one correct answer. If a regular six-sided die is rolled, what is the probability that it shows a number that is a **factor of six**.

- a. 1/6 c. 1/2
b. 1/3 d. None of the above

[6b] Open ended question – clearly explain or demonstrate your reasoning. Fill in the six-sided template at right such that if you had two dice made from this template, the probability of rolling a sum of 10 would be exactly 1/36.



[7] Answer each of the following, involving the Fundamental Principle of Counting.

[7a] A buffet offers five different appetizers, seven different entrees, and six different desserts. How many possible meal combinations are there? Show all work supporting your answer.

[7b] Four regular six-sided dice are rolled. How many total outcomes would there be?