Hybleland L9-Lesson 23 Probability I-Classical Probability-Assignment

Practice 1.

A standard deck of 52 cards has 13 ranks(Ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, Jack, Queen, King) and 4 suits (♠,♥,♦,♣), such that there is exactly one card for any given rank and suit. Two of the suits (♠, ♣) are black and the other two suits (♥,♦) are red. The deck is randomly arranged. What is the probability that

(1) The top card is a ♥?

(2) The top card is a 5?

(3) The top card is the King of ♦?

(4) The top card is a face card (a Jack, Queen, or King)?

(5) The top card is red and the second card is black?

(6) The top card is a 3 and the second card is a 8?

(7) The top two cards are both Aces?

(8) The top three cards are all ♠s?

Practice 2.

Roll two dice one after the other. What is the probability that the sum of the points is six? What is the probability that the product of points is 6?

Practice 3.

Two standard 6-sided dice are rolled. What is the probability that the sum rolled is a perfect square?

Practice 4.

SASMO Grade10 - 2016 / Problem 3

A 10 -sided dice with numbers from 1 to 10 on its faces is thrown once. Which of the following events has the lowest probability of occurrence?

A. The number rolled is a prime number B. The number rolled is an even number

C. The number rolled is a multiple of 3

D. The number rolled is one less than an even number E. None of the above

Practice 5.

5 white balls and k black balls are placed into a bin. Two of the balls are drawn at random. The probability that one of the drawn balls is white and the other is black is $\frac{10}{21}$. Find k.

Practice 6.

A fair coin is flipped 7 times. What is the probability that at least 5 of the flips come up heads?

Practice 7.

We have a standard deck of 52 cards, with 4 cards in each of 13 ranks (as in Problem 1). We call a 5-card poker hand a *full house* if the hand has 3 cards of one rank and 2 cards of another rank (such as 33355 or AAAKK). What is the probability that five cards chosen at random form a *full house*?

Practice 8.

Ten people are sitting around a round table. Three of them are chosen at random to give a presentation. What is the probability that the three chosen people were sitting in consecutive seats?

Practice 9.

AMC10B 2004 / Problem 11

Two eight-sided dice each have faces numbered 1 through 8. When the dice are rolled, each face has an equal probability of appearing on the top. What is the probability that the product of the two top numbers is greater than their sum?

A. $\frac{1}{2}$ B. $\frac{47}{64}$ C. $\frac{3}{4}$ D. $\frac{55}{64}$ E. $\frac{7}{8}$

Practice 10.

AMC10B 2016 / Problem 12

Two different numbers are selected at random from $(1, 2, 3, 4, 5)$ and multiplied together. What is the probability that the product is even?

A. 0.2 B. 0.4 C. 0.5 D. 0.7 E. 0.8

Practice 11.

What is the probability that a random arrangement of the letters in the word 'SEVEN' will have both E's next to each other?

Practice 12.

2 vertices of an octagon are chosen at random. What is the probability that they are adjacent?

Practice 13.

3 cards are chosen at random from a standard 52-card deck. What is the probability that they from a pair? (A 3-card hand is a “pair” if two of the cards match in rank but the third card is different. For example, 668 is a pair, but 999 is not.)

Practice 14.

2 diagonals of a regular heptagon (a 7-sided polygon) are chosen. What is the probability that they intersect inside the heptagon?

Practice 15.

n coins are simultaneously flipped. The probability that at most one of them shows tails is $\frac{3}{16}$. Find n.

Practice 16.

(MATHCOUNTS) Paco uses a spinner to select a number from 1 through 5 inclusive, each with equal probability. Manu uses a different spinner to select a number from 1 through 10 inclusive, each with equal probability. What is the probability that the product of their numbers is less than 30?

Practice 17.

Suppose we take two fair dice, but change the numbers on the faces. On one die, we'll replace the  with a  , and on the other, we'll replace the  with a  .

(1) What is the probability that the sum of the numbers shown when both are rolled is 7?

(2) What is the probability that the sum when the two are rolled is even?