

Homework 4

Do the following problems. Make sure to show your explanation. The odd-numbered problems have the answer key in the back of the book.

Problem 17 of 2.1: A dart board consists of 3 concentric circles of radii 1 ft, 2 ft, and 3 ft. If the dart is equally likely to hit the board at any location, the probability that it lands in a given region is equal to the area of the region divided by the entire area of the board. Using the formula $A = \pi r^2$ for the area of a circle of radius r , compute the probabilities of hitting each of the three regions on the dart board.

Problem 20 of 2.1: Consider an experiment in which 5 cards are drawn at random from a deck of 52 cards. Find the probability of drawing 2 queens and 3 kings.

Problem 5 of 2.2: A certain test consists of 10 multiple choice questions. Each question has 4 choices. What is the probability of getting at most 9 questions correct?

Problem 7 of 2.2: A pair of fair dice is rolled. What is the probability of getting a sum that is not equal to 7?

Problem 26 of 2.2: A card is drawn at random from a deck of cards. What is the probability that it will be a club or be an even numbered card?

Problem 27 of 2.2: Two fair dice are rolled. What is the probability that the dice are both the same or that the sum is 6?

Problem 33 of 2.2: Suppose you divide an ordinary deck of cards into two decks. Deck 1 consists of all of the red cards, and deck 2 consists of all of the black cards. Consider an experiment of first flipping a coin, and then choosing a card from deck 1 if the coin shows heads, and choosing a card from deck 2 if the coin shows tails. Are the events of getting a heads and getting an ace independent?