Score: /24

CS 222

Name: _____

Homework 3: Probability

Due date: Friday 2/19/2021 Submit the assignment via Canvas Assignments. Upload homework as one pdf document. A scanner app like Cam Scanner will make this possible.

Print and write work on this worksheet. Write clearly and show **all** work for full credit.

1. Amy, Jean, Keith, Tom, Susan, and Dave have all been invited to a birthday party. They arrive randomly and each person arrives at a different time. Find the probability that Jean will arrive first and Keith will arrive last. (2 points)

2. A committee consisting of 6 people is to be selected from eight parents and four teachers. Find the probability that the selected group will consist of all parents. (2 points)

3. You are dealt one card from a 52-card deck. Find the probability that you are NOT dealt a jack. (1 point)

4. The physics department of a college has 7 male professors, 12 female professors, 15 male teaching assistants, and 11 female teaching assistants. If a person is selected at random from the group, find the probability that the selected person is a teaching assistant or a female. (2 points)

5. Two six-sided dice are rolled. Find the odds in favor of getting a 7. (2 points)

6. A card is drawn from a 52-card deck and a fair coin is flipped. What is the probability of drawing a heart and flipping heads? (2 points)

7. There are 45 chocolates in a box, all identically shaped. There are 16 filled with nuts, 15 with caramel, and 14 are solid chocolate. You randomly select one piece, eat it, and then select a second piece. Find the probability of selecting 2 solid chocolates in a row. (2 points)

8. Numbered disks are placed in a box and one disk is selected at random. If there are 6 red disks numbered 1 through 6, and 2 yellow disks numbered 7 through 8, find the probability of selecting a red disk, given that an even-numbered disk is selected. (2points)

9. An architect is considering bidding for the design of a new shopping mall. The cost of drawing plans and submitting a model is $8,000. The probability of being awarded the bid is 0.15, and anticipated profits are $90,000, resulting in a possible gain of this amount minus the $8,000 cost for plans and a model. What is the expected value in this situation? (2 points)

10. You are planning a outdoor party today, but the morning is cloudy. 60% of all rainy day start cloudy, but cloudy mornings are common (about 30% of days start cloudy). And this month of June is usually a dry month (only 3 out of 30 days tend to be rainy, or 10%). What is the chance of rain during the day? (2 points)

The two-way frequency table below shows the preference of sports to watch among males and females of a sample of 150 people. (1 point each)

	Hockey (H)	Basketball (B)	Tennis (T)	Total
Male (M)	41	23	15	79
Female (F)	10	16	45	71
Total	51	39	60	150

11. Find the following probabilities. Write each answer as a decimal rounded to the nearest hundredth:

a. P(T) = _____

b. P(F) = _____

c. $P(\overline{B})$ = _____

d. $P(F \cap T) =$ _____

e. $P(F \cup T) =$ _____