

# (True) Day 4 HW

Name \_\_\_\_\_

Probability Day 4 Homework

## Conditional Probability

1. Complete the following table using sums from rolling two dice. Use the table to answer questions 2-3.

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

2. 2 fair dice are rolled. What is the probability that the sum is even given that the first die that is rolled is a 2?  
 $3/6 = 1/2$
3. 2 fair dice are rolled. What is the probability that the sum is even given that the first die rolled is a 5?  
 $3/6 = 1/2$
4. Steve and Scott are playing a game of cards with a standard deck of playing cards. Steve deals Scott a black king. What is the probability that Scott's second card will be a red card?  
 (26 red, 26 black)  $26/51$
5. At a local high school, the probability that a student speaks English and French is 15%. The probability that a student speaks French is 45%. What is the probability that a student speaks English, given that the student speaks French?  
 $P(E|F) = P(E \cap F) / P(F) = .15 / .45 = 33.3\%$
6. On a game show, there are 16 questions: 8 easy, 5 medium-hard, and 3 hard. If contestants are given questions randomly, what is the probability that the second contestants will get an easy question, given that the first contestant was given an easy question?  
 $P(E|E) = 7/15$
7. On the game show above, what is the probability that the first contestant will get an easy question and the second contestant will get a hard question?  
 $\frac{8}{16} \cdot \frac{3}{15} = 1/10$
8. Figure 2.2 shows the counts of earned degrees for several colleges on the East Coast. The level of degree and the gender of the degree recipient were tracked. Row & Column totals are included.

	Bachelor's	Master's	Professional	Doctorate	Total
Female	542	128	26	18	714
Male	438	165	38	20	661
Total	980	293	64	38	1375

- a. What is the probability that a randomly selected degree recipient is a female?  
 $714/1375$
- b. What is the probability that a randomly chosen degree recipient is a man?  
 $661/1375$
- c. What is the probability that a randomly selected degree recipient is a woman, given that they received a Master's Degree?  
 $128/293$
- d. For a randomly selected degree recipient, what is  $P(\text{Bachelor's Degree} | \text{Male})$ ?  
 $\frac{438}{661}$