Lesson 10 Practice Problems

1. The two-way table shows the number of games played by a team divided into categories based on whether the team warmed up or not as well as whether they made more shots than they missed during the game.

	more shots made	more shots missed
warmed up	14	6
didn't warm up	17	15

One of these games is selected at random. For each question, Event A is "game played when warmed up" and Event B is "more shots made than missed." Use the data to estimate the probabilities.

a. $P(\text{A})$

b. $P(\text{B})$

c. $P(\text{A and B})$

d. $P(\text{A} \mid \text{B})$

e. Use $P(\text{A} \mid \text{B}) = P(\text{A})$ and $P(\text{A and B}) = P(\text{A}) \cdot P(\text{B})$ to determine if the two events are dependent or independent. Show or explain your reasoning.

2. The two-way table shows the number of counties in northwestern Iowa where the average corn yield was more than 200 bushels per acre for the years 2016 and 2017.

	2016	2017
more than 200	9	6
200 or less	3	6

a. What does the value 3 represent in the table?

b. What is the probability that a county in northwestern Iowa selected at random had an average corn yield of more than 200 bushels per acre under the condition that it is 2016?

c. A historical record is selected from among these 24 about corn yield in northwestern Iowa counties. Let A represent the event that the record shows more than 200 bushels. Let B represent the event that the record is from 2016. Are events A and B dependent or independent? Explain your reasoning.

3. Tyler finds a news article that says, "The price of gasoline has increased to more than $3.00 per gallon and the pay for truck drivers is less than it was last year at this time." Are the events "gasoline costing more than $3.00 per gallon" and "truck driver pay" dependent or independent events? Explain your reasoning.

4. The two-way table summarizes whether or not a cross country team had practice when it was raining and when it was not raining at the end of the school day.

	cross country practice	no cross country practice
raining	6	2
not raining	12	1

a. When it was raining at the end of the school day, what is the probability that cross country practice was held?

b. When it was not raining at the end of the school day, what is the probability that cross country practice was held?

c. Are the events of "holding cross country practice" and "raining at the end of the school day" dependent or independent events? Explain your reasoning.

(From Unit 8, Lesson 9.)

5. Kiran flips a fair coin. If it lands on heads, Kiran will toss the coin again. If it lands on tails, Kiran will roll a standard number cube. What is the probability that Kiran gets heads on his second toss under the condition that he got heads on his first toss?

A. 0

B. 0.25

C. 0.5

D. 1

(From Unit 8, Lesson 8.)

6. Diego randomly selects a card from a standard deck of cards. He places it on his desk and then Clare randomly selects a card from the remaining cards in the same deck.

   a. What is the probability that Diego selects a card that has hearts on it?

   b. What is the probability that Clare selects a card that has hearts on it?

   c. What is the probability that Diego selects a card that has hearts on it and that Clare selects a card that has hearts on it?

   d. Are the events of Diego and Clare randomly selecting a card dependent or independent? Explain your reasoning.

   (From Unit 8, Lesson 7.)

7. A spinner is divided into 8 equal sections. 2 of them are bronze, 1 of them is silver, and 5 of them are gold.

   a. What is the probability that it lands on bronze?

   b. What is the probability that it lands on silver or gold?

   c. What is the probability that it lands on platinum?

   (From Unit 8, Lesson 2.)