Lesson 9 Practice Problems

1. A tour company makes trips to see dolphins in the morning and in the afternoon. The two-way table summarizes whether or not customers saw dolphins on a total of 40 different trips.

	morning	afternoon
dolphins	19	14
no dolphins	3	4

   a. If a trip is selected at random, what is the probability that customers did not see dolphins on that trip?

   b. If a trip is selected at random, what is the probability that customers did not see dolphins under the condition that the trip was in the morning?

   c. Are the events of seeing dolphins and the time of the trip (morning or afternoon) dependent or independent events? Explain your reasoning.

2. Noah is unsure whether the coin and number cube he has are fair. He flips the coin then rolls the number cube and records the result. He does this a total of 50 times. The results are summarized in the table.

	one	two	three	four	five	six
heads	5	3	5	3	5	6
tails	3	4	5	2	6	3

   a. Create a two-way table that displays the probability for each outcome based on Noah's tests.

   b. If one of Noah's 50 results is selected at random, what is the probability that the coin was heads?

   c. If one of Noah's 50 results is selected at random, what is the probability that the number cube was 5?

3. A student surveys 30 people as part of a project for a statistics class. Here are the survey questions.

- Are you left-handed or right-handed?

- Are you left-eye dominant or right-eye dominant?

The results of the survey are summarized in the two-way table.

	right-eye dominant	left-eye dominant
right-handed	14	11
left-handed	3	2

What is the probability that a person from the survey chosen at random is right-handed under the condition that they are right-eye dominant?

A. $\frac{25}{30}$

B. $\frac{14}{30}$

C. $\frac{14}{25}$

D. $\frac{14}{17}$

4. Priya flips a fair coin and then rolls a standard number cube. What is the probability that she rolled a 3 under the condition that she flipped heads?

A. $\frac{1}{2}$

B. $\frac{1}{6}$

C. $\frac{1}{12}$

D. $\frac{3}{12}$

(From Unit 8, Lesson 8.)

5. Andre flips one fair coin and then flips another fair coin.

   a. What is the probability that he gets heads on both coins?

   b. What is the probability that he gets heads on the second coin under the condition that the first flip is heads?

   c. What is the probability that the second flip is not heads?

   d. What is the probability that the first flip is heads and the second flip is not heads?

   (From Unit 8, Lesson 8.)

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

   a. What is the probability that Han selects a card that has diamonds on it?

   b. What is the probability that Jada selects a card that has diamonds on it?

   c. What is the probability that Han selects a card that has diamonds on it and that Jada selects a card that has diamonds on it?

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

   (From Unit 8, Lesson 7.)

7. An agriculturist takes 50 samples of soil and measures the levels of two nutrients, nitrogen and phosphorus. In 46% of the samples the nitrogen levels are low and in 28% of the samples the phosphorus levels are low. In 10% of the samples both the nitrogen and the phosphorus levels are low. What percentage of the samples have nitrogen levels or phosphorus levels that are low?

   (From Unit 8, Lesson 6.)

8. Select **all** of the situations that have a 50% chance of occurring.

     A. Rolling a standard number cube and getting a 3.

     B. Flipping two fair coins and getting heads on exactly one of the flips.

     C. Picking a letter at random from the word SEED and getting an E.

     D. Picking a letter at random from the word ORCHID and getting a vowel.

     E. Getting the answer correct when guessing randomly on a true or false question.

(From Unit 8, Lesson 1.)

9. A solid has volume 6 cubic units and surface area 14 square units. The solid is dilated, and the image has surface area 224 square units. What is the volume of the image?

(From Unit 5, Lesson 8.)