

LESSON **Practice A**
11-3 *Independent and Dependent Events*

Find each probability.

1. Hal is tossing a quarter.
 - a. What is the probability he will toss heads? _____
 - b. What is the probability he will toss tails? _____
 - c. What is the probability he will toss heads and then tails? _____
2. Hal tosses a quarter three times. What is the probability the result will be tails each time? _____
3. Katie rolls a 1–6 number cube twice. What is the probability she will roll an odd number and then an even number? _____
4. Katie rolls the 1–6 number cube three times. What is the probability that the result will be a 3 each time? _____

There are 3 apples and 5 oranges in a bag. Determine each probability.

5. Selecting 2 apples when they are chosen at random without replacement _____
6. Selecting an orange, then an apple when they are chosen at random without replacement _____

A student must have a B average or better for all courses to qualify for any athletic team at Jefferson High School. The table below shows the distribution of students' grades in three sports at the school.

Sport	Students with an A Average	Students with a B Average
Field hockey	15	4
Basketball	7	13
Football	2	22

An athlete is randomly selected. Find each probability in decimal form.

7. The student is a field hockey player with a B average. _____
8. The student has an A average and plays football. _____
9. The student has a B average and does NOT play football. _____

There are 4 green marbles and 3 white marbles in a bag. A white marble is randomly selected and not replaced. Then a green marble is randomly selected.

10. Are these events dependent or independent? _____
11. What is the probability of this event occurring? _____

LESSON
11-3

Practice B
Independent and Dependent Events

Find each probability.

1. A bag contains 5 red, 3 green, 4 blue, and 8 yellow marbles. Find the probability of randomly selecting a green marble, and then a yellow marble if the first marble is replaced. _____
2. A sock drawer contains 5 rolled-up pairs of each color of socks, white, green, and blue. What is the probability of randomly selecting a pair of blue socks, replacing it, and then randomly selecting a pair of white socks? _____

Two 1–6 number cubes are rolled—one is black and one is white.

3. The sum of the rolls is greater than or equal to 6 and the black cube shows a 3.
 - a. Explain why the events are dependent.

 - b. Find the probability. _____
4. The white cube shows an even number, and the sum is 8.
 - a. Explain why the events are dependent.

 - b. Find the probability. _____

The table below shows numbers of registered voters by age in the United States in 2004 based on the census. Find each probability in decimal form.

Age	Registered Voters (in thousands)	Not Registered to Vote (in thousands)
18–24	14,334	13,474
25–44	49,371	32,763
45–64	51,659	19,355
65 and over	26,706	8,033

5. A randomly selected person is registered to vote, given that the person is between the ages of 18 and 24. _____
6. A randomly selected person is between the ages of 45 and 64 and is not registered to vote. _____
7. A randomly selected person is registered to vote and is at least 65 years old. _____

A bag contains 12 blue cubes, 12 red cubes, and 20 green cubes.

Determine whether the events are independent or dependent, and find each probability.

8. A green cube and then a blue cube are chosen at random with replacement. _____
9. Two blue cubes are chosen at random without replacement. _____

LESSON
11-4

Practice A
Compound Events

Determine which event(s) are mutually exclusive.

- Students are forming 4 softball teams by each picking one of four different-color cards from a bag. Are the events "choosing a red card" and "choosing a blue card" mutually exclusive? Explain why or why not.

- Are the events "choosing a black card" from a deck of playing cards and "choosing a 10" mutually exclusive? Explain why or why not.

Solve.

- Apples are in $\frac{1}{4}$ of all of the lunch bags that are distributed at a school picnic, and bananas are in $\frac{1}{3}$ of the bags. What is the probability of randomly choosing a lunch bag that contains either an apple or a banana?

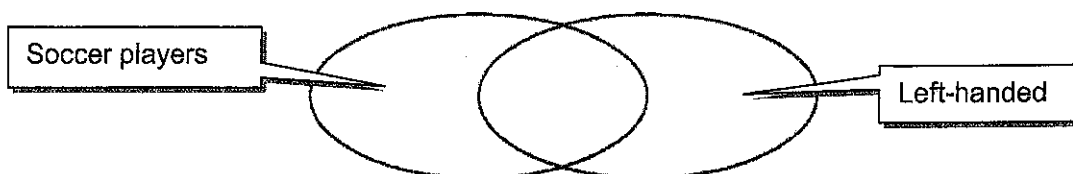
- A group of senior citizens have won free vacation packages. The vacation to Bermuda is chosen by 25% of them, 60% choose Alaska, and 15% choose Costa Rica. What is the probability that one randomly selected senior citizen chooses to vacation in Costa Rica or Bermuda?

Pam rolls a 1–6 number cube. Find each probability.

- Pam rolls a 3 or a 6. _____
- Pam rolls an even number. _____
- Pam rolls an odd or even number. _____
- Pam rolls an odd number or a 3. _____
- Pam rolls an odd number or a number greater than 4. _____

Use the data to fill in the Venn diagram. Then solve.

- Of the 65 students going on the soccer trip, 43 are players and 12 are left-handed. Only 5 of the left-handed students are soccer players. What is the probability that one of the students on the trip is a soccer player or is left-handed?



LESSON
11-4

Practice B
Compound Events

A can of vegetables with no label has a $\frac{1}{8}$ chance of being green beans and a $\frac{1}{5}$ chance of being corn.

1. Explain why the events "green beans" or "corn" are mutually exclusive.

2. What is the probability that an unlabeled can of vegetables is either green beans or corn?

Ben rolls a 1–6 number cube. Find each probability.

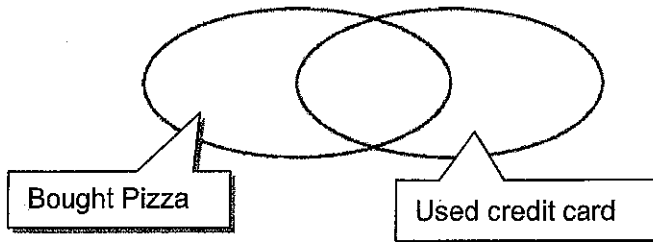
3. Ben rolls a 3 or a 4.
4. Ben rolls a number greater than 2 or an even number.
5. Ben rolls a prime number or an odd number.

Of the 400 doctors who attended a conference, 240 practiced family medicine and 130 were from countries outside the United States. One-third of the family medicine practitioners were not from the United States.

6. What is the probability that a doctor practices family medicine or is from the United States?
7. What is the probability that a doctor practices family medicine or is not from the United States?
8. What is the probability that a doctor does not practice family medicine or is from the United States?

Use the data to fill in the Venn diagram. Then solve.

9. Of the 220 people who came into the Italian deli on Friday, 104 bought pizza and 82 used a credit card. Half of the people who bought pizza used a credit card. What is the probability that a customer bought pizza or used a credit card?



Solve.

10. There are 6 people in a gardening club. Each gardener orders seeds from a list of 11 different types of seeds available. What is the probability that 2 gardeners will order the same type of seeds?
