Name Answer Key Date Class

LESSON 7-1

Probability

Practice and Problem Solving: A/B

Determine the probability of each event. Write *impossible, unlikely, as likely as not, likely,* or *certain.* Then, tell whether the probability is 0, close to 0, $\frac{1}{2}$, close to 1, or 1.

1. randomly picking a blue card from a bag containing all blue cards

   1; certain

2. rolling an odd number on a number cube containing numbers 1 through 6

   $\frac{1}{2}$; as likely as not

3. picking a red marble from 4 white marbles and 7 green marbles

   0; impossible

Find each probability. Write your answer in simplest form.

4. A bag holds 6 tiles: 2 lettered and 4 numbered. Without looking, you choose a tile. What is the probability of drawing a number?

   $\frac{4}{6} = \frac{2}{3}$

5. The names Phil, Angelica, Yolanda, Mimi, and Ed are on slips of paper in a hat. A name is drawn without looking. What is the probability of **not** drawing Ed?

   $\frac{4}{5}$

6. A standard deck of cards contains 13 of each suit: red hearts, red diamonds, black clubs, and black spades. What is the probability of drawing a red card without looking?

   $\frac{2}{4} = \frac{1}{2}$

A board game includes the 9 cards below.

Move back 2.	Move up 1.	Move up 4.	Move back 3.	Move up 3.	Move up 6.	Move back 2.	Move up 5.	Move up 2.

7. Mia says the probability of moving back is the same as the probability of moving up. Is she correct? What is the probability of moving back? Explain.

   Incorrect. The probability of moving back is $\frac{1}{3}$.

8. Gavin needs to move up more than 4 spaces to win the game. Is he likely to win on his next turn? What is the probability that he will **not** win on his next turn? Explain.

   Unlikely $\frac{2}{9}$ chance of winning

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LESSON 7-2

Experimental Probability of Simple Events

Practice and Problem Solving: A/B

Solve.

1. Jolene is playing basketball. She scored 11 baskets in 15 free throws. What is the experimental probability that she will score a basket on her next free throw?

   $\frac{11}{15}$ #u

2. Sarah has gone to work for 60 days. On 39 of those days, she arrived at work before 8:30 A.M. On the rest of the days she arrived after 8:30 A.M. What is the experimental probability she will arrive after 8:30 A.M. on the next day she goes to work?

   $\frac{21}{60} = \frac{7}{20}$

3. For the past four weeks, Micah has been recording the daily high temperature. During that time, the high temperature has been greater than 45°F on 20 out of 28 days. What is the experimental probability that the high temperature will be below 45°F on the twenty-ninth day?

   $\frac{2}{7}$

4. After the movie premier, 99 out of 130 people surveyed said they liked the movie.

   a. What is the experimental probability that the next person surveyed will say he or she liked the movie?

   $\frac{99}{130}$

   b. What is the experimental probability that the next person surveyed will say he or she did not like the movie?

   $\frac{31}{130}$

Find each experimental probability. Write your answer as a fraction, as a decimal, and as a percent.

5. For the past 40 days, Naomi has been recording the number of customers at her restaurant between 10:00 A.M. and 11:00 A.M. During that hour, there have been fewer than 20 customers on 25 out of the 40 days.

   a. What is the experimental probability there will be fewer than 20 customers on the forty-first day?

   $\frac{5}{8}$, .625, 62.5%

   b. What is the experimental probability there will be 20 or more customers on the forty-first day?

   $\frac{3}{8}$, .375, 37.5%

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LESSON 7-3

Experimental Probability of Compound Events

Practice and Problem Solving: A/B

Solve.

1. A coin was tossed and a spinner with three equal sections numbered 1 to 3 was spun. The results are shown in the table.

	Heads	Tails
1	53	65
2	49	71
3	54	62

What is the experimental probability that the next toss and spin will result in 3 and Tails? $\frac{62}{354} = \frac{31}{177}$

2. A receptionist recorded the number of people who took an elevator up from his floor and the number who took an elevator down. He also noted the number of men and women. The table shows the results.

	Elevator Up	Elevator Down
Men	36	43
Women	39	42

What is the experimental probability that the next person will be a woman taking the elevator up? $\frac{39}{160}$

3. Sandwich shop customers can choose the bread and meat they want. The table shows the sandwiches that were sold on a given day.

	White Bread	Wheat Bread
Ham	22	24
Turkey	21	22
Tuna	25	23

What is the experimental probability that the next sandwich sold will be tuna on wheat bread? $\frac{23}{137}$

4. A store sells a coat in three sizes: small, medium, and large. The coat comes in red, navy, and tan. Sales numbers are shown in the table.

	Small	Medium	Large
Red	18	21	19
Navy	24	22	20
Tan	19	25	22

What is the experimental probability that the next coat sold is **not** a large navy? $\frac{170}{190} = \frac{17}{19}$

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LESSON 7-4

Making Predictions with Experimental Probability

Practice and Problem Solving: A/B

Make a prediction based on experimental probability.

1. A bowler knocks down at least 6 pins 70 percent of the time. Out of 200 rolls, how many times can you predict the bowler will knock down at least 6 pins?

$\frac{70}{100} = \frac{x}{200}$ 140 times.

2. A tennis player hits a serve that cannot be returned 45 percent of the time. Out of 300 serves, how many can you predict will not be returned?

$\frac{45}{100} = \frac{x}{300}$ 135 times

3. West Palm Beach, Florida, gets rain about 16 percent of the time. On how many days out of 400 can residents of West Palm Beach predict they will get rain?

$\frac{x}{400} = \frac{16}{100}$ 64 days.

4. Rob notices that 55 percent of the people leaving the supermarket choose plastic bags instead of paper bags. Out of 600 people, how many can Rob predict will carry plastic bags?

$\frac{x}{600} = \frac{55}{100}$ 330 people

5. A baseball player reaches base 35 percent of the time. How many times can he expect to reach base in 850 at-bats?

$\frac{35}{100} = \frac{x}{850}$ $\approx$ 298 times.

6. Fredericka can make 65 percent of her shots from the free-throw line. If she shoots 75 times, how many shots can she expect to make?

$\frac{65}{100} = \frac{x}{75}$ $\approx$ 49 shots

7. In a current-events class, a professor predicted that at least 78 percent of students prefer getting their news from a digital source rather than from a print source. He polled 3 classes. The results are shown in the table below.

	Class 1	Class 2	Class 3
Digital	20	14	30
Print	5	10	7
	80%	58%	81%

In which class(es) did his prediction hold true? Explain.

class 1 and class 2 had percents greater than 78%