

## Probability

## Unit Test: C

1. Li rolls a number cube that has sides labeled 1 to 6 and then flips a coin. What is the probability that she rolls an odd number and flips tails?
- A  $\frac{1}{8}$                       C  $\frac{1}{2}$   
 B  $\frac{1}{4}$                       D  $\frac{3}{4}$
2. A bag contains 5 red marbles, 6 green marbles, and 3 blue marbles. If Cymra draws a marble, puts it back in the bag and then draws another marble, what is the probability that both marbles she draws will be red?
- A  $\frac{5}{14} \times \frac{4}{13}$                       C  $\frac{5}{14} + \frac{4}{13}$   
 B  $\frac{5}{14} \times \frac{5}{14}$                       D  $\frac{5}{14} + \frac{5}{14}$
3. If Cole flips a coin three times, what is the probability that he will flip tails at least twice?
- A  $\frac{1}{8}$                        C  $\frac{1}{2}$   
 B  $\frac{3}{8}$                       D  $\frac{7}{8}$
4. The probability that Linda receives spam e-mail is 4 percent. If she receives 520 e-mails in a week, about how many of them can she expect to be spam?
- A 18                      C 25  
 B 21                      D 29
5. Morgan knows the probability of event A occurring is 0.56. What must be true about the probability that events A and B occur?
- A The probability is less than 0.56.  
 B The probability is equal to 0.56.  
 C The probability is greater than 0.56.  
 D It is impossible to tell what the probability will be.
6. Shaul made a password that consists of one letter followed by two digits. The two digits are different. How many possible passwords did Shaul choose from?
- A 90                      C 720  
 B 260                       D 2,340
7. Tomas spins a spinner that is divided into equally-sized sections that are shaded yellow, green, blue, and red. What is the probability that Tomas spins pink?
- A 0                      C  $\frac{1}{2}$   
 B  $\frac{1}{4}$                       D  $\frac{3}{4}$
8. The experimental probability that Ming will win a game of chance is  $\frac{2}{5}$ . The experimental probability that Tyrell will win the same game is  $\frac{5}{8}$ . If Ming and Tyrell each play 200 games, how many more games can Tyrell expect to win?
- A 16                      C 25  
 B 24                       D 45
9. Desiree has a box of grease pencils. 8 are green, 10 are yellow, 9 are brown, and 5 are blue. If Desiree selects a grease pencil at random, which color is she twice as likely to select as blue?
- A green                       C yellow  
 B brown                      D blue
10. Wendy noticed that out of 345 cars that passed by her house 56 were SUVs. About how many SUVs could she expect to see pass by if 2,100 cars were to pass her house?
- A 200                      C 400  
 B 300                      D 500

**UNIT**  
**6** **Probability**

11. Arabella's password consists of 1 letter followed by 2 digits. What is the probability of correctly guessing Arabella's password?

1  
2,600

12. Ty's experimental probability of winning a certain game is  $\frac{1}{3}$ . Jana's experimental probability of winning the same game is  $\frac{3}{4}$ . If Ty and Jana each played the game 150 times, about how many more games would Jana expect to win?

63

13. **Lydia's Survey Results**

		Favorite School Subject	
		English	Math
Favorite Sport	Football	34	15
	Baseball	32	41

Lydia recorded the favorite school subject and favorite sport for students in the school band. Based on the results of her survey, what is the experimental probability that the favorite school subject of a student surveyed is math?

$\frac{56}{122}$  or  $\frac{28}{61}$

14. At the same time, Marisol rolls 2 number cubes that each have sides labeled 1 to 6. What is the probability that the product of the numbers will be greater than or equal to 24?

$\frac{1}{6}$

15. Leni can choose between apple, orange and grapefruit juice. She can choose between the sizes small, medium and large. If she chooses a drink at random, what is the probability that she chooses orange juice in a medium size cup?

$\frac{1}{9}$

16. **Deirdre's Experimental Outcomes**

Trial	Outcome
1	Red, H
2	Red, T
3	Blue, T
4	Green, H
5	Blue, T

Deirdre flipped a coin then spun a spinner 5 times. The results are shown in the table above. What is the experimental probability that Deirdre spun green?

$\frac{1}{5}$

17. The experimental probability that Alexander wins a tennis match is 0.21. If he plays 40 tennis matches in the next week, about how many matches can Alexander expect to lose?

32

18. Colin remembers nine digits of a ten-digit phone number. He remembers that the last digit is an even number. If he guesses the last digit, what is the probability that he dials the correct number?

$\frac{1}{5}$  or 20%

**MODULE**  
**12**
**Experimental Probability**
**Module Quiz: B**

- Denise rolls a number cube that has sides labeled 1 to 6 and then flips a coin. What is the probability that she rolls an odd number and flips heads?
 

A $\frac{1}{8}$	C $\frac{1}{2}$
<input checked="" type="radio"/> B $\frac{1}{4}$	D $\frac{3}{4}$
- There are 4 jacks in a standard deck of 52 playing cards. If Patricia selects a card at random, what is the probability that it will be a jack?
 

A $\frac{1}{52}$	C $\frac{1}{2}$
<input checked="" type="radio"/> B $\frac{1}{13}$	D $\frac{12}{13}$
- The experimental probability that Kevin will catch a fly ball is equal to  $\frac{7}{8}$ . About what percent of the time will Kevin catch a fly ball?
 

A 55%	C 77%
B 66%	<input checked="" type="radio"/> D 88%
- Janelle's Office Supply shop sells 2 types of notebooks. Each notebook is offered in red, blue, or yellow. If a notebook is selected at random, how many different possibilities are in the sample space?
 

A 4	C 8
<input checked="" type="radio"/> B 6	D 16
- Morgan saw 10 blue, 8 red, and 42 white cars drive by her house in 1 hour. What is the experimental probability that the next car that drives by her house will **not** be a white car?
 

<input checked="" type="radio"/> A 0.3	C 0.6
B 0.5	D 0.7
- If the probability of an event is 0.99, which of the following best describes the event?
 

A The event will never occur.
B There is a small chance that the event will occur.
<input checked="" type="radio"/> C The event is likely to occur.
D The event will definitely occur.
- A rectangle has a width of 10 inches and a length of 12 inches. A similar rectangle has a width of 15 inches. What is the length of the similar rectangle?
 

A 12 in.	C 16 in.
B 14 in.	<input checked="" type="radio"/> D 18 in.
- The experimental probability that Jessica will hit the ball when she is at bat is  $\frac{2}{5}$ . If she is at bat 50 times in a season, how many times can Jessica expect to hit the ball?
 

A 15	C 25
<input checked="" type="radio"/> B 20	D 30
- Philip has a box of crayons. 45 are yellow, 12 are green, 25 are blue, and 7 are red. If Philip selects a crayon at random, which color crayon would he be **most** likely to select?
 

A green	C red
B blue	<input checked="" type="radio"/> D yellow
- Celine flipped a coin 100 times. She flipped heads 41 times and tails 59 times. What is the experimental probability that the next flip will be heads?
 

<input checked="" type="radio"/> A $\frac{41}{100}$	C $\frac{59}{100}$
B $\frac{1}{2}$	D $\frac{3}{4}$

**MODULE**  
**12**

**Experimental Probability**

11. A number cube has sides labeled 1 to 6. Connie rolls the number cube 12 times. She rolls a 5 three times. What is the experimental probability that her next roll will not be a 5?

$\frac{3}{4}$

12. Suki has 54 rock songs, 92 dance songs and 12 classical songs on her playlist. If Suki's music player randomly selects a song from the playlist, what is the probability that the song will not be a classical song?

$\frac{73}{79}$  or  $0.92$

13. **Dominick's Survey Results**

Food	Number of Students
Pizza	8
Hamburger	12
Pasta	14
Steak	6

Dominick recorded the favorite food of students in his class. Based on the results of his survey, what is the experimental probability the next student he surveys will respond "Pizza" or "Steak"?

$\frac{7}{20}$  or  $0.35$

14. The experimental probability of rain in a certain town is 20 percent. In the next 45 days, how many days can one expect it to rain?

9 days

15. Alessandro painted  $\frac{1}{3}$  of a wall in 45 minutes. If he keeps painting at the same rate, how much longer will it take him to finish painting the wall?

1 hr 30 min

16. **Cathy's Color Picks**

Color	Frequency
Red	10
Yellow	5
Blue	12
Orange	28

Cathy conducted an experiment in which she placed red, yellow, blue, and orange pieces of paper in a hat and drew them out without looking. The number of times Cathy drew each color is shown in the table above. What is the experimental probability that the next slip of paper Cathy draws will be orange?

$\frac{28}{65}$  or  $0.61$

17. The experimental probability that Amir will make a basket is 0.4. The experimental probability that Juju will make a basket is 0.6. If Amir and Juju each shoot 150 baskets, about how many more baskets will Juju be expected to make?

30 more

18. Daria selected a number from the positive integers less than 10. What is the probability that she selected a prime number?

$\frac{4}{9}$

**MODULE**  
**13**

**Theoretical Probability and Simulations**

**Module Quiz: B**

- What is the probability of flipping a coin 3 times and getting 3 heads?  

<input checked="" type="radio"/> A $\frac{1}{8}$	<input type="radio"/> C $\frac{1}{2}$
<input type="radio"/> B $\frac{1}{4}$	<input type="radio"/> D $\frac{3}{4}$
- Two number cubes each have sides that are labeled 1 to 6. Isis rolls the 2 number cubes. What is the probability that the sum of the numbers rolled will equal 4?  

<input type="radio"/> A $\frac{1}{36}$	<input checked="" type="radio"/> C $\frac{1}{12}$
<input type="radio"/> B $\frac{1}{18}$	<input type="radio"/> D $\frac{1}{6}$
- Dustin has a spinner that is divided into 5 equal-size sections colored red, blue, orange, white, and green. What is the probability that Dustin spins pink on the next spin?  

<input checked="" type="radio"/> A 0	<input type="radio"/> C 0.5
<input type="radio"/> B 0.25	<input type="radio"/> D 0.75
- Isidro flips a fair coin 40 times. How many times can he expect heads to appear?  

<input type="radio"/> A 4	<input type="radio"/> C 15
<input type="radio"/> B 10	<input checked="" type="radio"/> D 20
- A number cube has sides labeled 1 to 6. Hannah rolls the number cube 18 times. How many times can she expect to roll a number less than 3?  

<input type="radio"/> A 2	<input checked="" type="radio"/> C 6
<input type="radio"/> B 3	<input type="radio"/> D 8
- Flavia has a bag with 8 white balls, 9 red balls, 14 green balls, and 10 orange balls. If she chooses a ball from the bag without looking, which color ball will Flavia be **least** likely to choose?  

<input checked="" type="radio"/> A white	<input type="radio"/> C green
<input type="radio"/> B red	<input type="radio"/> D orange
- Without looking, Tammy takes a marble out of a bag that contains 10 red marbles, 15 green marbles, and 25 blue marbles. She records its color and returns the marble to the bag. If Tammy repeats this process 90 times, how many times can she expect to pull out a red marble?  

<input type="radio"/> A 5	<input type="radio"/> C 15
<input type="radio"/> B 10	<input checked="" type="radio"/> D 18
- Caelin drives at 30 miles per hour. How many hours will it take him to drive 210 miles?  

<input type="radio"/> A 5 h	<input checked="" type="radio"/> C 7 h
<input type="radio"/> B 6 h	<input type="radio"/> D 8 h
- Alexander spins a spinner with four equally-sized regions and flips a coin. How many outcomes are possible?  

<input type="radio"/> A 2	<input checked="" type="radio"/> C 8
<input type="radio"/> B 6	<input type="radio"/> D 36
- Scarlett selects a card at random from a deck that contains 18 red, 12 yellow, and 20 blue cards. What is the probability that she does **not** select a red card?  

<input type="radio"/> A $\frac{13}{25}$	<input type="radio"/> C $\frac{18}{25}$
<input checked="" type="radio"/> B $\frac{16}{25}$	<input type="radio"/> D $\frac{24}{25}$
- Bella rolls 2 number cubes 60 times. How many times can she expect the sum of the numbers to be greater than 10?  

<input type="radio"/> A 3	<input type="radio"/> C 10
<input checked="" type="radio"/> B 5	<input type="radio"/> D 12
- Glen has 3 pairs of shoes, 5 shirts, and 4 pairs of pants. How many outfits consisting of 1 pair of shoes, 1 shirt, and 1 pair of pants can he make?  

<input type="radio"/> A 12	<input type="radio"/> C 30
<input type="radio"/> B 20	<input checked="" type="radio"/> D 60

**MODULE**  
**13**

**Theoretical Probability and Simulations**

13. Two number cubes each have sides labeled 1 to 6. Ann rolls both number cubes. On the first roll, the sum of the numbers was equal to 10. On the second roll, the sum of the numbers was equal to 7. Which sum was more likely to occur? Explain.

Sum of 7; there are more ways for numbers rolled on 2 number cubes to add up to 7 than 10.

14. **Simran's Simulation Results**

Trial	Numbers Generated	Trial	Numbers Generated
1	1, 1, 3, 3	6	4, 5, 5, 5
2	3, 4, 5, 5	7	3, 4, 4, 5
3	2, 3, 4, 4	8	2, 2, 2, 1
4	1, 3, 4, 4	9	4, 5, 5, 3
5	3, 4, 4, 5	10	3, 3, 3, 3

Simran used a simulation to predict the number of defective parts that are produced in a factory. Random numbers are generated. A number 1 indicates that the part is defective. Numbers 2, 3, 4, or 5 indicate that the part is not defective. Of the next four parts produced, what is the experimental probability that none of the parts are defective?

7/10 0.7 or 70%

15. Fatima bought a video game that has a regular price of \$45. The game was on sale for 15 percent off, and she paid sales tax of 7 percent. What was the price Fatima paid for the video game?

\$ 40.93

16. Constantine walked 4 miles in 50 minutes. If he continues walking at this pace, how many minutes will it take him to walk 6 miles?

75 min

17. **Simran's Simulation Results**

Trial	Numbers Generated	Trial	Numbers Generated
1	1, 1, 3, 3	6	4, 5, 5, 5
2	3, 4, 5, 5	7	3, 4, 4, 5
3	2, 3, 4, 4	8	2, 2, 2, 1
4	1, 3, 4, 4	9	4, 5, 5, 3
5	3, 4, 4, 5	10	3, 3, 3, 3

Simran used a simulation to predict the number of days of rain in his town. A number 1 or 2 indicates a week in which it rained. Numbers 3, 4, or 5 indicate a week in which it did not rain. The results of the simulation are shown above. What is the experimental probability that it will rain in Simran's town in at least 1 of the next 4 weeks?

4/10 0.4 or 40%

18. Each student in a class of 25 students wrote down a random digit. What is the predicted number of students who wrote a digit that is greater than 7?

5

19. A special deck of cards consists of 5 red cards, 20 blue cards, and 25 green cards. Svetlana selects 1 card from the special deck 500 times. How many times can she expect to draw a red card?

50