Date Completed: _____
Mentor Initials: _____

Probability (Basic)

1. A wallet containing 4 five-dollar bills, 8 ten-dollar bills, and 3 twenty-dollar bills is found and returned to its owner. The wallet's owner will reward the finder with 1 bill drawn randomly from the wallet. What is the probability that the bill drawn will be a twenty-dollar bill?

A. $\frac{1}{15}$

B. $\frac{1}{10}$

C. $\frac{1}{3}$

D. $\frac{1}{5}$

E. $\frac{1}{4}$

2. Cheryl will draft 1 player at random from a list of 21 players for her fantasy football team. Each player in the list plays only 1 position. The number of players who play a particular position is given in the table below. What is the probability that the player Cheryl drafts will be a kicker or a safety?

Position	# of Players
Kicker	3
Linebacker	5
Quarterback	7
Safety	6

A. $\frac{2}{23}$

B. $\frac{1}{4}$

C. $\frac{1}{21}$

D. $\frac{2}{21}$

E. $\frac{3}{7}$

3. The 44-member Physics Club is meeting to choose a student government representative. The members decide that the representative, who will be chosen at random, CANNOT be any of the 5 officers of the club. What is the probability that Aliyah, who is a member of the club but NOT an officer, will be chosen?

A. 0

B. $\frac{1}{44}$

C. $\frac{1}{39}$

D. $\frac{6}{44}$

E. $\frac{1}{5}$

4. A carnival game is played using an open box with a rectangular bottom measuring 8 inches by 10 inches. A square with side lengths of 2 inches is painted on the bottom of the box. The game is played by dropping a small bead into the open box. If the bead comes to rest in the painted square, the player wins a prize. Assuming a bead dropped into the box comes to rest at a random spot on the bottom of the box, which of the following is closest to the probability that the bead comes to rest in the painted square?

A. 0.05
B. 0.10
C. 0.16
D. 0.20
E. 0.24

5. A bag contains exactly 16 solid-colored buttons: 4 red, 6 blue, and 6 white. What is the probability of randomly selecting 1 button that is NOT blue?

A. $\frac{1}{16}$

B. $\frac{1}{10}$

C. $\frac{5}{16}$

D. $\frac{5}{8}$

E. $\frac{3}{4}$

6. A marble will be randomly selected from a bag of solid-colored marbles. The probability of selecting a red marble is $\frac{4}{17}$. The probability of selecting a blue marble is $\frac{3}{17}$. What is the probability of selecting a red marble *or* a blue marble?

A. $\frac{1}{17}$

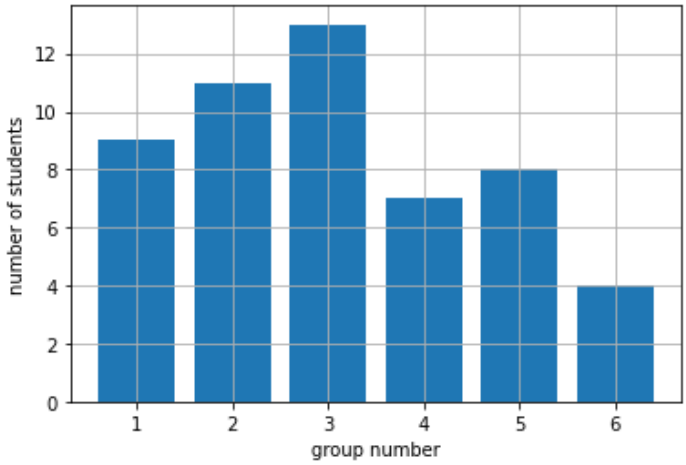
B. $\frac{7}{34}$

C. $\frac{7}{17}$

D. $\frac{6}{17}$

E. $\frac{12}{289}$

7. The graph below shows the number of students who were present on Wednesday from each of the 6 groups in Ms. Zhou's class. What is the probability that a student selected at random from the class on Wednesday is in Group 2?



A. $\frac{1}{52}$

B. $\frac{11}{52}$

C. $\frac{1}{8}$

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

E. $\frac{1}{3}$

8. If it rains in Whitehorse on a particular day, the probability that it will rain there the following day is 0.65. If it does not rain in Whitehorse on a particular day, the probability that it will rain there the following day is 0.08. Given that it rained in Whitehorse on Tuesday, what is the probability that it will NOT rain in Whitehorse on Wednesday of the same week?

A. 0.10
B. 0.15
C. 0.35
D. 0.65
E. 0.92

9. A bag contains 12 solid-colored marbles of the same size: 3 red, 3 green, 2 yellow, and 4 blue. Which of the following expressions gives the probability of drawing, at random and without replacement, a blue marble on the 1st draw, a green marble on the 2nd draw, and a blue marble on the 3rd draw?

A. $\left(\frac{4}{12}\right)\left(\frac{3}{12}\right)\left(\frac{3}{12}\right)$
B. $\left(\frac{4}{12}\right)\left(\frac{3}{12}\right)\left(\frac{4}{12}\right)$
C. $\left(\frac{4}{12}\right)\left(\frac{3}{11}\right)\left(\frac{4}{10}\right)$
D. $\left(\frac{4}{12}\right)\left(\frac{3}{11}\right)\left(\frac{3}{10}\right)$
E. $\left(\frac{4}{12}\right)\left(\frac{4}{11}\right)\left(\frac{3}{10}\right)$

10. The probabilities that each of 2 independent events will occur are given in the table below.

Event	Probability
A	0.35
B	0.45

Which of the following is closest to the probability that both Events A and B will occur – that is, $P(A \text{ and } B)$?

A. 0.10
B. 0.16
C. 0.55
D. 0.70
E. 0.84

11. A basketball team has 6 seniors and 5 juniors. The coach will randomly select 2 team members, one at a time, to represent the team at a school event. Given that the first student selected is a senior, what is the probability that the second student selected will be a junior?

A. $\frac{1}{10}$

B. $\frac{2}{5}$

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

D. $\frac{5}{11}$

E. $\frac{6}{11}$

12. The probability that Event *A* will occur is 0.15. The probability that Event *B* will occur is 0.45. Given that Events *A* and *B* are mutually exclusive, what is the probability that Event *A or* Event *B* will occur?
(Note: Round to two decimal places)

A. 0.07
B. 0.15
C. 0.30
D. 0.53
E. 0.60

13. The probability of Alyce being chosen to play goalie for her soccer team is $\frac{1}{11}$. What are the odds in favor of Alyce being chosen to play goalie?

(Note: The *odds in favor* of an event are defined as the ratio of the probability that the event will happen to the probability that the event will NOT happen.)

A. $\frac{1}{10}$

B. $\frac{1}{11}$

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

D. $\frac{10}{1}$

E. $\frac{11}{1}$

14. A bag contains 14 red gumballs, 17 yellow gumballs, and 5 green gumballs. How many additional red gumballs must be added to the 36 gumballs already in the bag so that the probability of randomly drawing a red gumball is $\frac{5}{7}$?

A. 23
B. 31
C. 34
D. 41
E. 51

15. The probability that *only* Event *A* will occur is 0.15. The probability that *only* Event *B* will occur is 0.45. The probability that both Event *A* and Event *B* will occur is .07. Given that Events *A* and *B* are NOT mutually exclusive, what is the probability that Event *A or* Event *B* will occur?
(Note: Round to two decimal places)

A. 0.07
B. 0.15
C. 0.30
D. 0.53
E. 0.60