

1. The odds in favour of the Renegades winning the season final in the football league are listed as 10:7. The odds against the Renegades winning the season final are
- A. 3:7
 - B. 3:10
 - C. 7:10
 - D. 10:3

Numerical Response

2. Statistics show that 6 out of 25 car accidents are weather-related. The odds that a car accident is weather-related can be expressed in the form $a:b$. The values of a and b are, respectively, _____ and _____.
3. A class of 35 students has 17 males. One student will be selected at random from the class. Jeanette suggested that the odds in favour of selecting a male student would be 17:35. Is Jeannette correct? Justify your answer.

Use the following information to answer the next question.

A television game show has listed the following odds in favour of winning for three of their games.

Game	Odds of Winning
Flip'em	1:3
Central Eye	2:5
Minefield	1:4

4. a. What is the probability of winning the Flip'em game?
- b. Which of the three games is a contestant most likely to win? Justify your answer.

Use the following information to answer the next question.

An article from a Canadian newspaper has the following headline.

Bingo More Popular than Hockey in Cityville

The article presents the following facts for a particular year.

Population	1 160 000
Total attendance at a professional hockey game	670 000
Total bingo cards sold in the city	12 960 000

The article includes the odds of a randomly selected resident performing each activity and uses these odds to reach its conclusion that bingo is more popular than hockey.

Odds of a resident attending a bingo game are 300:29
Odds of a resident attending a hockey game are 67:116

After looking at the odds presented in the article, Randall feels that the headline of the article is correct in claiming that bingo is more popular than hockey because 300:29 are higher odds than 67:116.

5. Explain why you agree or disagree with Randall's belief that the headline of the article logically interprets the odds described. Be sure to include a detailed explanation of odds and probability in your response.
6. At a private school, each student must wear a school uniform that includes a dress shirt and pants. The dress shirt can be white, gray, or light blue. The pants can be navy or black. Use a graphic organizer to show the different possible variations of the uniform.

Use the following information to answer the next question.

For the set of numbers 1 to 20 inclusive, Theresa knows that some numbers are divisible by 3 and some numbers are even. She is going to write each number on a ball and place them in a box.

7.
 - a. Model this set using a graphic organizer.
 - b. If one ball is randomly selected from the box, what is the probability that the number written on it is divisible by 3 or is an even number?
 - c. Explain why 14 and 17 would be examples of numbers that belong to the set $P(\text{Divisible by } 3 \cap \text{Even Number})$.

8. A particular traffic light at the outskirts of a town is red for 30 s, green for 25 s, and yellow for 5 s in every minute. When a vehicle approaches the traffic light, the probability that the light will be red or yellow is

- A. $\frac{7}{12}$
- B. $\frac{1}{2}$
- C. $\frac{1}{12}$
- D. $\frac{1}{24}$

Use the following information to answer the next question.

Malaga, Spain, lies in a region of Europe known as the Costa Del Sol (Coast of the Sun). The probability of sunshine on any given day in the region is approximately 0.89.

Numerical Response

9. In a non-leap year of 365 days, the average number of days of the year that a tourist could expect to experience weather other than sunshine, to the nearest whole number, is _____ days.

Use the following information to answer the next question.

Some possible events for rolling a regular six-sided die are listed below.

- 1 An even number
- 2 A number less than 3
- 3 A number that is a multiple of 3
- 4 A number that is greater than or equal to 2

Numerical Response

10. From the list above, the two events that are mutually exclusive are numbered _____ and _____.

Use the following information to answer the next question.

A recent survey determined that 85% of a population watches TV at least once a day, 35% of the population uses a computer at least once a day and 25% of the population do both.

- 11. a.** What is the probability that a person chosen at random from the population watches TV at least once a day or uses a computer at least once a day?
- b.** Use a graphic organizer to model the probabilities described above.
- c.** Are the events of watching TV at least once a day and using the computer at least once a day mutually exclusive events? Justify your answer.

Use the following information to answer the next question.

The probability of Brenda getting a hit in a baseball game is 0.345. The probability of Brenda or Deborah getting a hit during the game is 0.617. The probability of both Brenda and Deborah getting hits during the game is 0.224.

- 12.** Determine the probability of Deborah getting a hit in the game.

Use the following information to answer the next question.

Tom is selecting a shirt to wear to school. Event A is choosing a particular shirt to wear on Monday, and event B is choosing a particular shirt to wear on Tuesday.

- 13. a.** Describe a situation where event A and event B are dependent events.
- b.** Describe a situation where event A and event B are independent events.
- 14.** A box contains 6 blue balls and 4 red balls. Two balls are drawn from the box, one after the other, without replacement. The probability, to the nearest hundredth, that the first ball drawn is blue and the second ball drawn is red is _____.

15. Based on previous performance, the probability of a particular baseball team winning any game is $\frac{4}{5}$. The probability that this team will win their next 2 games is
- A. $\frac{1}{5}$
 - B. $\frac{4}{5}$
 - C. $\frac{1}{25}$
 - D. $\frac{16}{25}$

Use the following information to answer the next question.

In a particular class, the probability that a student has a home video game system is 0.62. In the same class, the probability that a student will have a home video game system and a TV in their bedroom is 0.46.

16. Assuming that having a home video game system and having a TV in their bedroom are independent, determine the probability, to the nearest hundredth, that a student in the class has a TV in their bedroom.
17. A hotel offers free breakfast to its guests. One morning the hotel has 3 different kinds of juice, 4 different kinds of cereal, and 2 different types of pastries available. If a guest can choose one kind of juice, one kind of cereal and one type of pastry, how many different possible breakfasts can be ordered?

Use the following information to answer the next question.

A new licence plate in Alberta consists of three letters followed by four numbers. Letters are chosen from a list of 24 acceptable letters that may be repeated.

Maureen wants the first letter on her licence plate to be an M, which is an acceptable letter, and she also wants the four numbers to match the last four digits of her cell phone number.

Numerical Response

18. The number of licence plates that will meet Maureen's criteria is _____.

19. Determine the number of six-digit odd numbers that can be created using the digits 0 to 9 without repetition. Describe any restrictions that exist.
20. Determine the number of arrangements of all the letters in the word TATTOO.
21. Determine the number of 3-letter arrangements of the letters of the word DIPLOMA.
22. Only six people have tickets for 2 prizes in a school draw. Once a ticket is drawn for a prize, it is not reentered in the draw. What is the probability that Bill wins the first prize and Mary wins the second prize?
23. A 7-player volleyball team must stand in a straight line for a picture.
- Determine the number of different arrangements that can be made for the picture.
 - Determine the number of arrangements that can be made for the picture if the tallest player must stand in the middle.

Use the following information to answer the next question.

A student is classifying the following contexts that require the use of either permutations or combinations.

Context A	Dialing a 10-digit telephone number with distinct digits
Context B	Choosing 5 people for a committee
Context C	Selecting 4 fruits to put in a salad
Context D	Opening a lock with a 3-number combination

Numerical Response

24. For each context, use a 1 to indicate if it should be solved using a **permutation** and use a 2 to indicate if it should be solved using a **combination**.

Context A would be solved using a _____ (Record in the **first** column)

Context B would be solved using a _____ (Record in the **second** column)

Context C would be solved using a _____ (Record in the **third** column)

Context D would be solved using a _____ (Record in the **fourth** column)

25. Triangles can be formed in an octagon by connecting any 3 of its vertices. Determine the number of different triangles that can be formed in an octagon.
26. A school committee consists of 1 vice-principal, 2 teachers, and 3 students. The number of different committees that can be selected from 2 vice-principals, 5 teachers, and 9 students is
- A. 20 160
 - B. 8 008
 - C. 1 680
 - D. 90
27. In a group of 9 students, there are 4 females and 5 males.
- a. How many different committees consist of 2 or 3 students?
 - b. How many different 4-member committees have 2 females and 2 males?
 - c. Determine the probability that a 4-member committee chosen at random from this group will consist of 2 males and 2 females.
 - d. In the group of 9 students, 3 are in Grade ten, 3 are in Grade eleven and 3 are in Grade twelve. Determine the probability that 2 Grade 10 students are chosen to be on a two-person committee.
28. Ralph knows that there are 15 distinguishable possibilities when 2 people are chosen to form a committee from a particular group of n people.
- a. Describe what values of n would be admissible in this problem.
 - b. Determine the number of people in the larger group, n .

Use the following information to answer the next question.

A committee of 3 girls and 2 boys is to be chosen from a group of 9 girls and 7 boys. The total number of different committees that can be formed can be expressed in the form

$${}_w C_x \cdot {}_y C_z$$

where ${}_w C_x$ represents the number of possible choices of girls for the committee and ${}_y C_z$ represents the number of possible choices of boys for the committee.

Numerical Response

29. The values of w , x , y , and z are _____, _____, _____, and _____, respectively.