

Quick Check 1.4

- 1 A number from 1 to 9 is chosen at random. What is the probability of choosing an odd number?
- 2 The probability of a Kulim teenager owning an iPad is 0.53, of owning a tablet is 0.75 and of owning both is 0.38. If a Kulim teenager is chosen at random, what is the probability that the teenager owns an iPad or a tablet?
- 3 A box contains three red shirts, two green shirts, four white shirts and three yellow shirts. Two shirts are chosen from the box with replacement. What is the probability that both shirts chosen are green?
- 4 A survey at a tuition centre found that 7 out of 15 students ride motorcycles. If three students are selected at random without replacement, what is the probability that all three ride motorcycles to the tuition centre?
- 5 In Malaysia, 88% of all citizens have a television. In addition, 43% of all citizens have a television and a computer. What is the probability that a citizen has a computer given that he or she has a television?
- 6 A box contains 100 copper plugs where 27 are oversized (O) while 16 are undersized (U) and the rest are acceptable (A). A plug is taken, tested but not replaced. A second plug is treated similarly. Determine the probability that:
 - (a) both plugs are acceptable
 - (b) the first plug is oversized and the second plug is undersized.
- 7 A bag contains four red balloons, two yellow balloons and six white balloons. A balloon is drawn at a random from the bag. Find the probability of the following events.
 - (a) Drawing a white balloon.
 - (b) Not drawing a red balloon.
- 8 A bag contains four red marbles, two yellow marbles and six white marbles. A marble is drawn at a random from the bag. Find the probability that the marbles chosen is either red or white in colour.
- 9 A coin and a dice are tossed together. Find the probability of getting heads and the number 5.
- 10 A box contains ten cards numbered 1 to 10. A card is drawn at a random from the box. Given A is an event of obtaining an even number and B is an odd number which is more than 5:
 - (a) determine if events A and B are mutually exclusive
 - (b) find the probability of obtaining an even number or an odd number which is more than 5.
- 11 The probability that a baby born in a family is a girl or a boy is $\frac{1}{2}$. If a family has two children, find the probability that there is at least one boy and one girl.

- 12 When an unbiased dice is thrown, find the probability of obtaining:
- (a) the number 5
 - (b) a number greater than 3
 - (c) an odd number more than 3.
- 13 Two boxes X and Y contain cards numbered 1 to 4. A card is chosen at random from box X and another card is chosen at random from box Y. Find the probability that the sum of the two numbers is:
- (a) an even number and a number more than 5
 - (b) an even number or a number more than 5.
- 14 Two fair coins are tossed simultaneously.
- (a) Show all the possible outcomes using a tree diagram.
 - (b) If A represents the event of the outcomes of the first coin and B represents the event of the outcomes of the second coin, are A and B independent events?
 - (c) Find the probability that the coins will show at least one head in this experiment.
- 15 Three fair coins are tossed simultaneously. Find the probability of obtaining:
- (a) three heads
 - (b) at least two tails.
- 16 A used car company started a business with 60 Proton and Honda cars. Twenty-five of the cars are Protons. If two cars are sold without replacement, determine the probability that:
- (a) both cars are Hondas
 - (b) both cars are Protons
 - (c) both cars are different.

- 17

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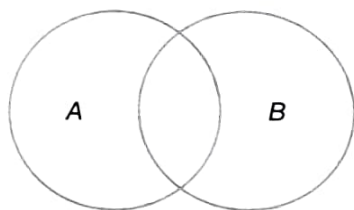
The diagram shows a telephone number. One digit is picked at random from the telephone number. Find the probability that the digit picked is:

- (a) the number 4
 - (b) an odd number
 - (c) a multiple of 3 or less than 7.
- 18 Dina and Hafiz are invited to attend a wedding ceremony. The probability that Dina will attend the ceremony is $\frac{3}{10}$ and the probability Hafiz will attend is $\frac{4}{7}$. Assuming that both Dina and Hafiz do not influence each other to attend the ceremony, find the probability that:

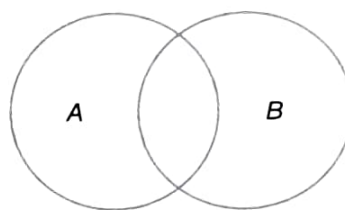
- (a) both Dina and Hafiz will attend the ceremony
- (b) neither of them will attend the ceremony
- (c) only one of them will attend the ceremony
- (d) at least one of them will attend the ceremony.

19 Shade the region to represent the following:

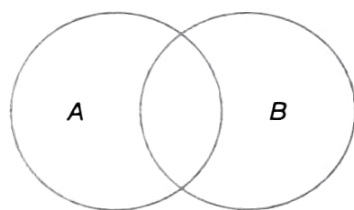
(a) In A



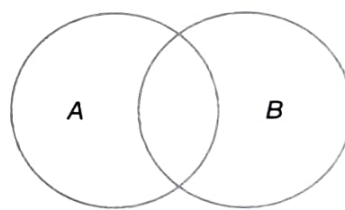
(d) In A or B



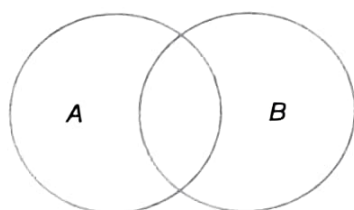
(b) In B



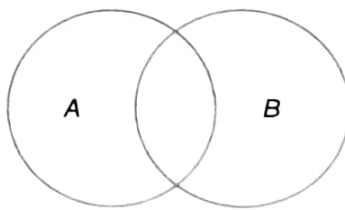
(e) In B but not in A



(c) In both A and B



(f) In exactly one of A or B



20 Given the following sets:

$$S = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20\}$$

$$A = \{10, 12, 14\}$$

$$B = \{2, 4, 6, 8\}$$

$$C = \{16, 18, 20\}$$

Find the probability that a number chosen at random from the sample space S is in:

- (a) sets A or B
- (b) sets A or B or C .



- Statistics is a **study of making sense of data**, which is part and parcel of scientific procedures and methods for **collecting, organizing, summarizing, presenting and analysing data**.

Based on the data given:

- (a) Draw a 'less than' ogive. Based on the ogive, find the passing mark if 15% of the participants passed the test. Referring to the ogive, find the median.
 (b) Draw a histogram. Referring to the histogram, find the mode.

- 9 The table below shows the number of goals scored in 20 matches.

Number of goals	0	1	2	3	4
Frequency	1	7	5	5	2

Calculate the:

- (a) variance
 (b) standard deviation.
- 10 Given the mean of the data $(x - 5)$, $(x + 5)$, $(x + 8)$, $(3x - 4)$, $(4x + 7)$ is 12.2.
 (a) Find the value of x .
 (b) Find the variance and standard deviation of the data.
- 11 The following table shows the typing speed for 120 secretarial students.

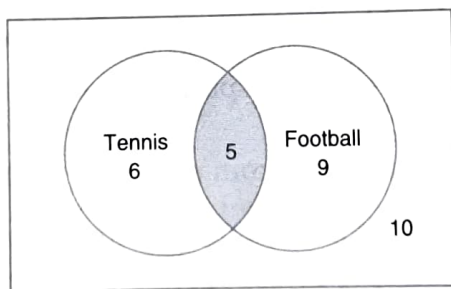
Words per minute	Number of students
1-10	30
11-20	15
21-30	43
31-40	20
41-50	10
51-60	2

Based on the table, calculate the:

- (a) mean
 (b) median
 (c) variance
 (d) standard deviation
 of the typing speeds of the students.
- 12 A box contains nine black pencils, six red pencils and n blue pencils. If the probability of picking a red pencil is $\frac{3}{10}$, find the value of n .
- 13 A student is picked randomly from a class of 40 students. The probability that the student picked is male is $\frac{3}{10}$. Find the number of female students.
- 14 A drawer contains five white shirts, eight black shirts and nine blue shirts. Two shirts are selected at random without replacement. Find the probability that the shirts are of the same colour.

- 15** A box contains 10 blue marbles, x yellow marbles and y red marbles. A marble is picked randomly from the box. The probabilities of getting a blue marble and a yellow marble are $\frac{1}{6}$ and $\frac{2}{3}$ respectively. Find the value of y .
- 16** The probabilities of Mina and Amin being chosen as members of a committee are $\frac{3}{5}$ and $\frac{7}{9}$ respectively. Find the probability that only one of them is chosen as a member of the committee.
- 17** In a sample of 30 students, 10 have type O blood, 5 have type A blood, 8 have type B blood and 7 have type AB blood. Find the following probabilities:
- (a) A student who has type A or type B blood
 - (b) Students who have neither type A nor type O blood
- 18** The probability that a student is late for school on any day is $\frac{1}{6}$. Find the probability that the students is:
- (a) late for school at least once in any two consecutive days
 - (b) never late for school in any two consecutive days.
- 19** List down all elements of the sample space S of each of the following experiments:
- (a) A dice is thrown.
 - (b) A card is chosen at random from a set of cards numbered 1 to 12.
- 20** Two fair coins are tossed simultaneously. If A represents the event of obtaining the head of the first coin and B represents the event of obtaining the tail of the second coin, find the probability for the occurrence of events A or B .
- 21** A box has two green balls, four red balls and four yellow balls. A ball is drawn at random from the box. Given that A represents the event that a green ball is drawn and B represents the event that a yellow ball is drawn:
- (a) Calculate the probability for the occurrence of:
 - (i) event A
 - (ii) event B .
 - (b) State whether the two events are mutually exclusive.
 - (c) Calculate the probability for the occurrence of event A or event B .
- 22** In hockey match between team A and team B, based on the results of the past years, the probability that team A wins is 0.2 and the probability that team B wins is 0.5. Calculate the probability that:
- (a) the match ends in a draw
 - (b) team A or team B wins.
- 23** On a certain day, three babies were born at a hospital in Selangor. Construct a tree diagram to show all the possible outcomes of the genders of the babies. Then find the probability that:
- (a) two baby boys and one baby girl were born
 - (b) at least one baby boy was born.

- 24** Puan Azira has four children. If the probability of having a boy is $\frac{1}{2}$, find the probability that among her four children:
- (a) there are two boys followed by two girls
 - (b) there are three boys followed by one girl
 - (c) there is at least one boy.
- 25** Aiman, Chong and Ramesh compete against each other in shooting a target. The probabilities that they strike the target are $\frac{2}{5}$, $\frac{3}{4}$ and $\frac{2}{3}$ respectively. Calculate the probability that:
- (a) all three of them strike the target
 - (b) only one of them strikes the target
 - (c) at least one of them strikes the target.
- 26** The Venn diagram below shows the sports played by a class of students.



- Find:
- (a) the total numbers of students in the class
 - (b) the number of students who play tennis only
 - (c) the probability that a student plays tennis and football
 - (d) the probability that a student plays tennis or football
 - (e) the probability that a student plays neither tennis nor football.
- 27** In a class of 30 students, 17 play video games and 12 watch MTV. It turns out that five students play video games and watch MTV. A student in this class is to be selected at random. Find the probability that the student:
- (a) plays video games
 - (b) watches MTV
 - (c) watches MTV or plays video games, but not both
 - (d) neither plays video games nor watches MTV.