QUESTION 1 A card is drawn at random from a normal pack of 52 cards. Find the probability that the card is:

a a club _____ **b** a black card _____ **c** an ace _____

d not a spade _____ **e** a black ace _____ **f** a red card _____

QUESTION 2 From the letters of the word 'CHANCE', one letter is selected at random. What is the probability that the letter is:

a a vowel? _____ **b** a consonant? _____ **c** the letter C? _____

QUESTION 3 A die is thrown once. Find the probability that the number is:

a a five _____ **b** an odd number _____

c a number greater than 2 _____ **d** zero _____

e a prime number _____ **f** a square number _____

QUESTION 4 A bag contains 6 yellow, 4 blue and 5 red balls. If a ball is drawn at random, find the probability that it is:

a yellow _____ **b** red _____ **c** blue _____

d not yellow _____ **e** white _____ **f** either blue or red _____

QUESTION 5 A three-digit number is to be formed from the digits 1, 5 and 9, written on three separate cards. What is the probability that the number:

a formed is even? _____ **b** is odd? _____

c is less than 500? _____ **d** is divisible by 3? _____

e is divisible by 5? _____ **f** is greater than 100? _____

QUESTION 6 The numbers 1 to 7 are written on separate cards. One card is chosen at random. What is the probability that:

a the number is odd? _____ **b** the number is even? _____

c it is 6? _____ **d** it is zero? _____

e it is a prime number? _____ **f** it is divisible by 3? _____

QUESTION 7 A letter is chosen from the word 'PROBABILITY'. What is the probability that the letter is:

a a vowel? _____ **b** a consonant? _____ **c** the letter B? _____

d the letter P or B? _____ **e** the letter M? _____ **f** the letter Y? _____

QUESTION **1** A bag contains 4 white marbles and 1 black marble. If one marble is drawn out at random, what is the probability, as a decimal, that it is:

a black

b white

c yellow

QUESTION **2** A raffle ticket is drawn from a box containing 100 tickets numbered from 1 to 100. Find the percentage chance that the number of the ticket is:

a divisible by 10

b less than 10

c greater than 10

d a multiple of 5

e greater than 90

f a number containing the digit 9

QUESTION **3** A spinner used in a game is in the shape of a pentagon, and has an equal chance of landing on any of its sides. The sides are numbered 1, 2, 3, 4 and 5. What is the probability, as a percentage, that the spinner lands on:

a 2

b an odd number

QUESTION **4** The internal phone numbers at a factory have three digits.

a How many phone numbers are possible? _____

b If the numbers are allocated at random, what is the probability, as a decimal, that Lucas has a phone number that ends in 5?

QUESTION **5** A bag holds 9 blue, 6 red and 3 yellow golf tees. If a tee is selected at random from the bag at random, what is the probability, (as a fraction in simplest form), that the tee is:

a blue

b red

c yellow

d red or blue

e green

f red, yellow or blue

QUESTION **6** Complete:

The probability of any event is always in the range from _____ to _____ .

QUESTION 1 A die is rolled. What is the probability of:

a not getting a 6 _____ **b** not getting a 3 _____

c not getting a 4 or 5 _____ **d** not getting an even number _____

QUESTION 2 From a pack of 52 playing cards one card is drawn at random. What is the probability that it is not a club?

_____

QUESTION 3 The probability of winning a competition is $\frac{1}{500}$. What is the probability of losing?

_____

QUESTION 4 A coin is tossed once. What is the probability that the result is:

a not a head _____

b neither a head nor a tail _____

c either a head or a tail _____

QUESTION 5 The probability of a train arriving on time is $\frac{19}{32}$. What is the probability that it will not arrive on time?

_____

QUESTION 6 The probability of it raining today is $\frac{1}{5}$. What is the probability of it not raining today?

_____

QUESTION 7 A bag holds only two-dollar coins. If a coin is selected at random from the bag, what is the probability that it is not a two-dollar coin.

_____

QUESTION 8 There is a 27% chance of winning a game. What is the probability of not winning the game?

_____

QUESTION 9 The probability of a baby being born with a particular defect is 0.005. What is the probability of the baby being born without that defect?

_____

QUESTION 10 As the result of an experiment it is determined that the chance that any motorist at a particular location is exceeding the speed limit is 1 in 5. If a motorist at that location is randomly selected, what is the probability that she or he is travelling at, or less than, the speed limit?

_____

3 A company produces boxes of individually wrapped chocolates. They intend each box to have 30 chocolates but suspect that the packing process is not entirely accurate, so they conduct a random sample of 100 boxes and check the contents. The table shows the results obtained.

Number of chocolates	28	29	30	31
Number of boxes	3	15	72	10

a What is the probability of buying a box with:

i the correct number of chocolates?

ii more than 30 chocolates?

iii fewer chocolates than intended?

b Do you consider that this situation is fair to the purchaser?

4 Kevin has a set of cards labelled 1, 2, 3, …, 10, and conducts an experiment in which he draws one card at random. Consider the following events.

$A = \{ 2, 4, 6, 8, 10 \}$ = an even card is drawn
$B = \{ 1, 3, 5, 7, 9 \}$ = an odd card is drawn
$C = \{ 2, 3, 5, 7 \}$ = a prime number is drawn
$D = \{ 5, 6, 7, 8, 9, 10 \}$ = a number greater than 4
$E = \{ 8, 9, 10 \}$ = a number greater than 7
$F = \{ 1, 2, 3, 4 \}$ = a number less than 5

a Name any pairs of:

i complementary events **ii** mutually exclusive events

b Find the probability of each event.

22 A horse is grazing inside an enclosed rectangular paddock 50 m by 20 m and is free to move anywhere inside the paddock. Assuming that the horse's position is random, what is the probability that at any given time the horse is:

(a) more than 5 m from the fence
(b) less than 5 m from the fence
(c) not more than 5 m from a corner?