

Probability

Question Paper 7

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Probability
Sub-Topic	Probability
Booklet	Question Paper 7

Time Allowed: 56 minutes

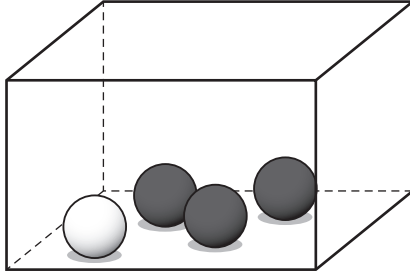
Score: /46

Percentage: /100

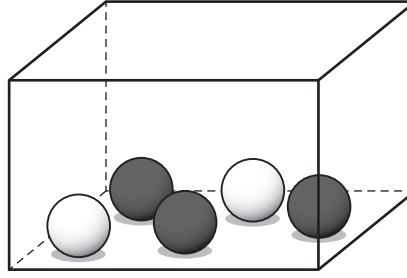
Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1



A



B

Box A contains 3 black balls and 1 white ball.
Box B contains 3 black balls and 2 white balls.

- (a) A ball can be chosen at random from either box.
Complete the following statement.

There is a greater probability of choosing a white ball from Box

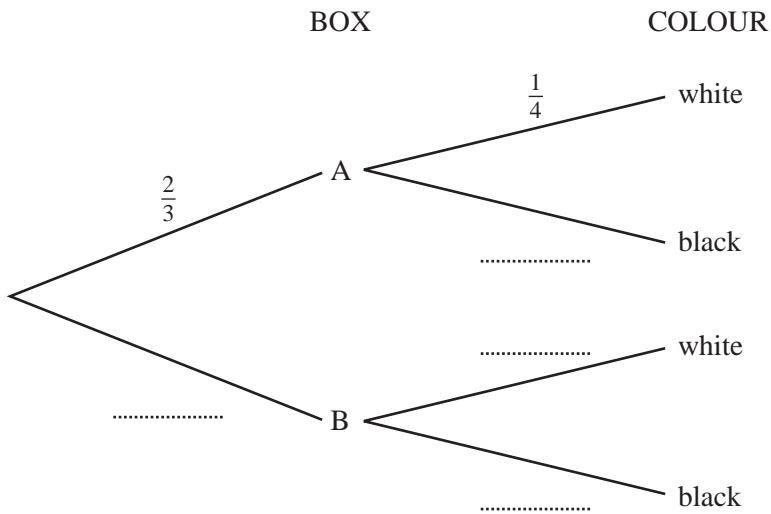
Explain your answer.

Answer(a) [1]

- (b) Abdul chooses a box and then chooses a ball from this box at random.

The probability that he chooses box A is $\frac{2}{3}$.

- (i) Complete the tree diagram by writing the four probabilities in the empty spaces.



[4]

(ii) Find the probability that Abdul chooses box A and a black ball.

Answer(b)(ii) [2]

(iii) Find the probability that Abdul chooses a black ball.

Answer(b)(iii) [2]

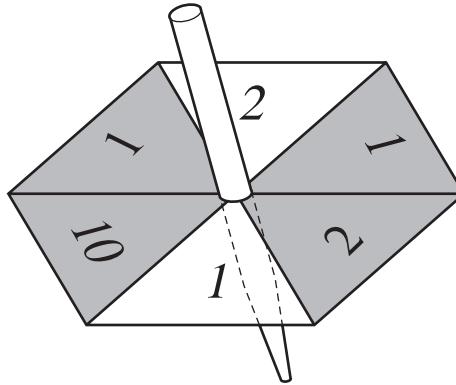
(c) Tatiana chooses a box and then chooses **two** balls from this box at random (without replacement).

The probability that she chooses box A is $\frac{2}{3}$.

Find the probability that Tatiana chooses two white balls.

Answer(c) [2]

2



The diagram shows a spinner with six numbered sections.
Some of the sections are shaded.
Each time the spinner is spun it stops on one of the six sections.
It is equally likely that it stops on any one of the sections.

(a) The spinner is spun once.

Find the probability that it stops on

(i) a shaded section,

Answer(a)(i) [1]

(ii) a section numbered 1,

Answer(a)(ii) [1]

(iii) a shaded section numbered 1,

Answer(a)(iii) [1]

(iv) a shaded section or a section numbered 1.

Answer(a)(iv) [1]

(b) The spinner is now spun twice.

Find the probability that the total of the two numbers is

(i) 20,

Answer(b)(i) [2]

(ii) 11.

Answer(b)(ii) [2]

(c) (i) The spinner stops on a shaded section.

Find the probability that this section is numbered 2.

Answer(c)(i) [1]

(ii) The spinner stops on a section numbered 2.

Find the probability that this section is shaded.

Answer(c)(ii) [1]

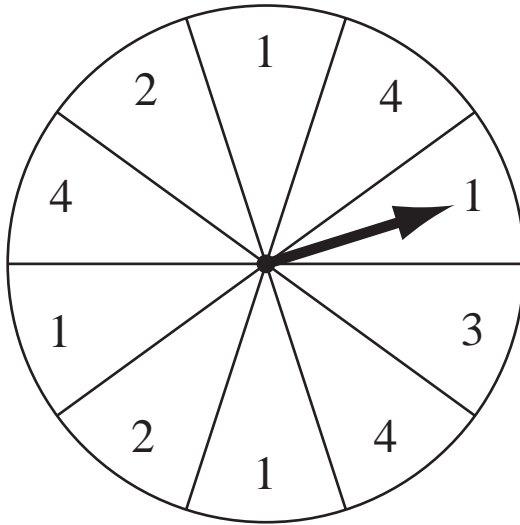
(d) The spinner is now spun until it stops on a section numbered 2.

The probability that this happens on the n th spin is $\frac{16}{243}$.

Find the value of n .

Answer(d) $n =$ [2]

3



The diagram shows a circular board, divided into 10 numbered sectors.

When the arrow is spun it is equally likely to stop in any sector.

(a) Complete the table below which shows the probability of the arrow stopping at each number.

Number	1	2	3	4
Probability		0.2		0.3

[1]

(b) The arrow is spun once.

Find

(i) the most likely number,

Answer(b)(i) [1]

(ii) the probability of a number less than 4.

Answer(b)(ii) [1]

(c) The arrow is spun twice.

Find the probability that

(i) both numbers are 2,

Answer(c)(i) [1]

(ii) the first number is 3 and the second number is 4,

Answer(c)(ii) [2]

(iii) the two numbers add up to 4.

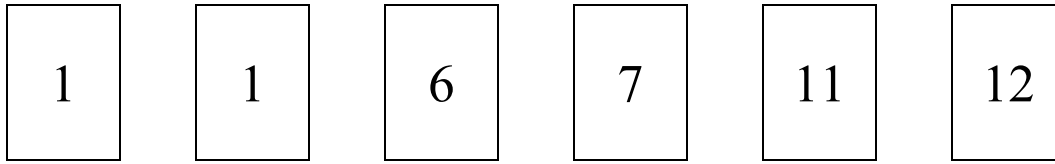
Answer(c)(iii) [3]

(d) The arrow is spun several times until it stops at a number 4.

Find the probability that this happens on the third spin.

Answer(d) [2]

4



Six cards are numbered 1, 1, 6, 7, 11 and 12.

In this question, give all probabilities as fractions.

(a) One of the six cards is chosen at random.

(i) Which number has a probability of being chosen of $\frac{1}{3}$?

Answer(a)(i) [1]

(ii) What is the probability of choosing a card with a number which is smaller than **at least three of the other numbers**?

Answer(a)(ii) [1]

(b) Two of the six cards are chosen at random, without replacement.

Find the probability that

(i) they are both numbered 1,

Answer(b)(i) [2]

(ii) the total of the two numbers is 18,

Answer(b)(ii) [3]

(iii) the first number is **not** a 1 and the second number is a 1.

Answer(b)(iii) [2]

(c) Cards are chosen, without replacement, until a card numbered 1 is chosen.

Find the probability that this happens before the third card is chosen.

Answer(c) [2]

(d) A seventh card is added to the six cards shown in the diagram.

The mean value of the seven numbers on the cards is 6.

Find the number on the seventh card.

Answer(d) [2]