

FREE SAMPLE

GCSE Maths: Probability

Grade 4 starter questions

Questions	15
Total marks	54
Sub-topics covered	5
Papers drawn from	14
Years	2017 to 2024

Likelihood, expectation and listing outcomes.

Every question is taken from the opening section of a real Edexcel Higher paper - the part where grade 4 marks are won - and is worth five marks or fewer.

The mark schemes are in a separate booklet, so you can work through these without the answers in front of you.

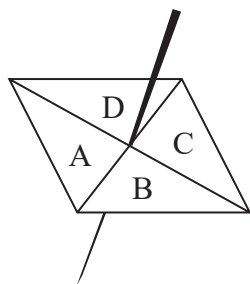
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Question 1

November 2023 · Paper 3 · Q2

2 marks

2 Here is a biased spinner.



The table shows the probabilities that when the spinner is spun it will land on A, on B, on C and on D.

Letter	A	B	C	D
Probability	0.4	0.21	0.32	0.07

Luka will spin the spinner 200 times.
Work out an estimate for the number of times the spinner will land on A.

(Total for Question 2 is 2 marks)

P3 Relative Frequency and Theoretical Probability

Question 2

November 2017 · Paper 2 · Q4

3 marks

- 4 There are only blue cubes, yellow cubes and green cubes in a bag.

There are

twice as many blue cubes as yellow cubes
and four times as many green cubes as blue cubes.

Hannah takes at random a cube from the bag.

Work out the probability that Hannah takes a yellow cube.

.....
(Total for Question 4 is 3 marks)

P4 Probabilities Summing to One

Question 3

June 2017 · Paper 2 · Q1

3 marks

1 The table shows the probabilities that a biased dice will land on 2, on 3, on 4, on 5 and on 6

Number on dice	1	2	3	4	5	6
Probability		0.17	0.18	0.09	0.15	0.1

Neymar rolls the biased dice 200 times.

Work out an estimate for the total number of times the dice will land on 1 or on 3

(Total for Question 1 is 3 marks)

Question 4

November 2021 · Paper 3 · Q6

4 marks

- 6 In a bag there are only red counters, blue counters, green counters and pink counters. A counter is going to be taken at random from the bag.

The table shows the probabilities of taking a red counter or a blue counter.

Colour	red	blue	green	pink
Probability	0.05	0.15		

The probability of taking a green counter is 0.2 more than the probability of taking a pink counter.

- (a) Complete the table.

(2)

There are 18 blue counters in the bag.

- (b) Work out the total number of counters in the bag.

.....
(2)

(Total for Question 6 is 4 marks)

Question 5

June 2018 · Paper 3 · Q6

5 marks

- 6 There are some counters in a bag.
The counters are red or white or blue or yellow.

Bob is going to take at random a counter from the bag.

The table shows each of the probabilities that the counter will be blue or will be yellow.

Colour	red	white	blue	yellow
Probability			0.45	0.25

There are 18 blue counters in the bag.

The probability that the counter Bob takes will be red is twice the probability that the counter will be white.

- (a) Work out the number of red counters in the bag.

.....
(4)

A marble is going to be taken at random from a box of marbles.
The probability that the marble will be silver is 0.5

There must be an even number of marbles in the box.

- (b) Explain why.

.....
(1)

(Total for Question 6 is 5 marks)

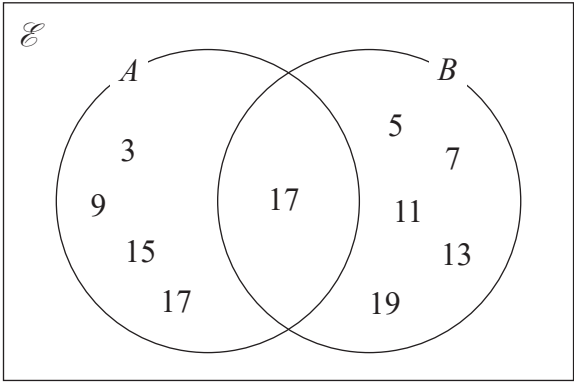
Question 6

November 2024 · Paper 2 · Q4

2 marks

- 4 $\mathcal{E} = \{\text{odd numbers between 0 and 20}\}$
 $A = \{3, 9, 15, 17\}$
 $B = \{5, 7, 11, 13, 17, 19\}$

Tom was asked to draw a Venn diagram for this information.
Here is his answer.



Write down two things Tom should do to make his answer fully correct.

- 1.....
.....
- 2.....
.....

(Total for Question 4 is 2 marks)

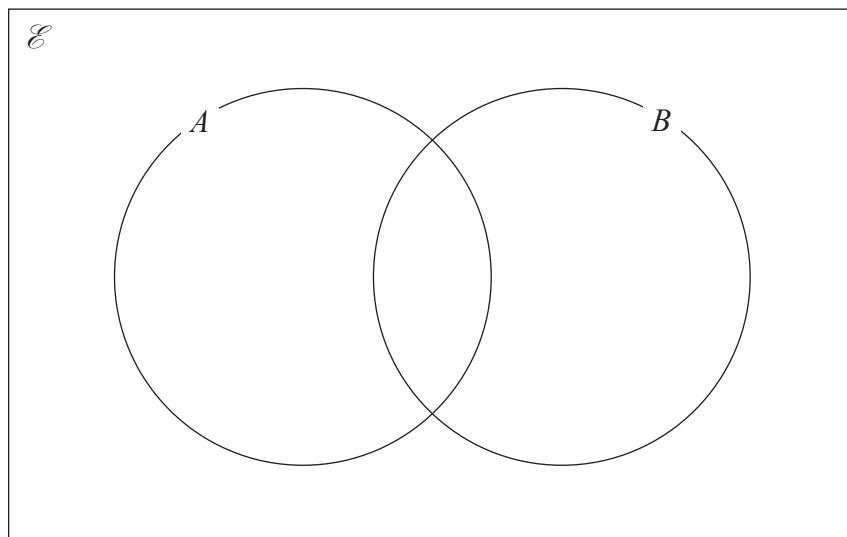
Question 7

November 2021 · Paper 1 · Q2

3 marks

- 2 $\mathcal{E} = \{\text{even numbers less than 19}\}$
 $A = \{6, 12, 18\}$
 $B = \{2, 6, 14, 18\}$

Complete the Venn diagram for this information.



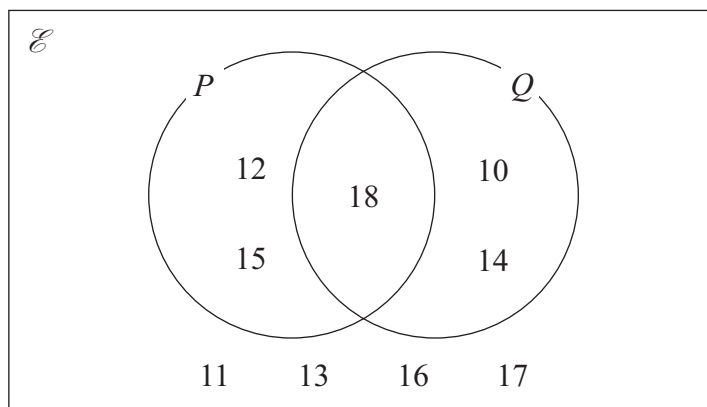
(Total for Question 2 is 3 marks)

Question 8

June 2024 · Paper 1 · Q4

3 marks

4 Here is a Venn diagram.



(a) Write down the numbers that are in set P'

(1)

A number is chosen at random from the universal set, $\mathcal{E}$

(b) Find the probability that this number is in the set $P \cup Q$

(2)

(Total for Question 4 is 3 marks)

Question 9

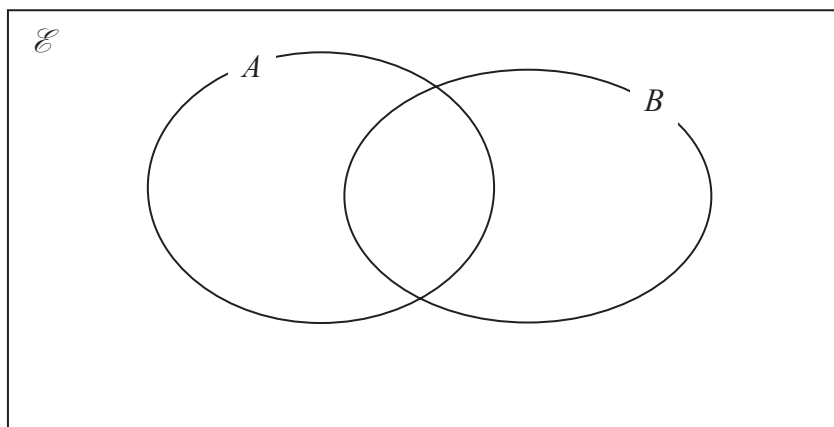
June 2019 · Paper 3 · Q1

5 marks

1 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$

$A = \{1, 5, 6, 8, 9\}$

$B = \{2, 6, 9\}$



(a) Complete the Venn diagram to represent this information.

(3)

A number is chosen at random from the universal set $\mathcal{E}$.

(b) Find the probability that the number is in the set $A \cap B$

.....
(2)

(Total for Question 1 is 5 marks)

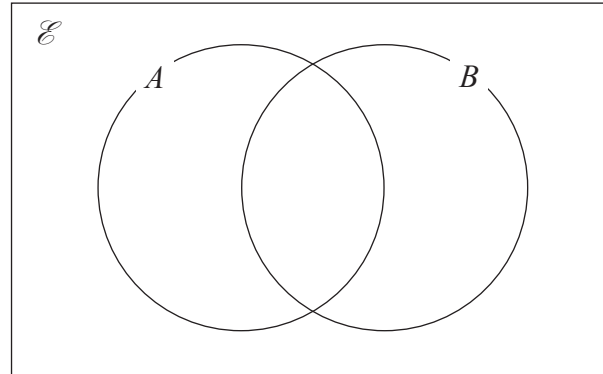
Question 10

November 2020 · Paper 2 · Q2

5 marks

- 2 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
 $A = \{\text{even numbers}\}$
 $B = \{\text{factors of } 10\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set, $\mathcal{E}$

(b) Find the probability that this number is in the set $A \cap B$

.....
(2)

(Total for Question 2 is 5 marks)

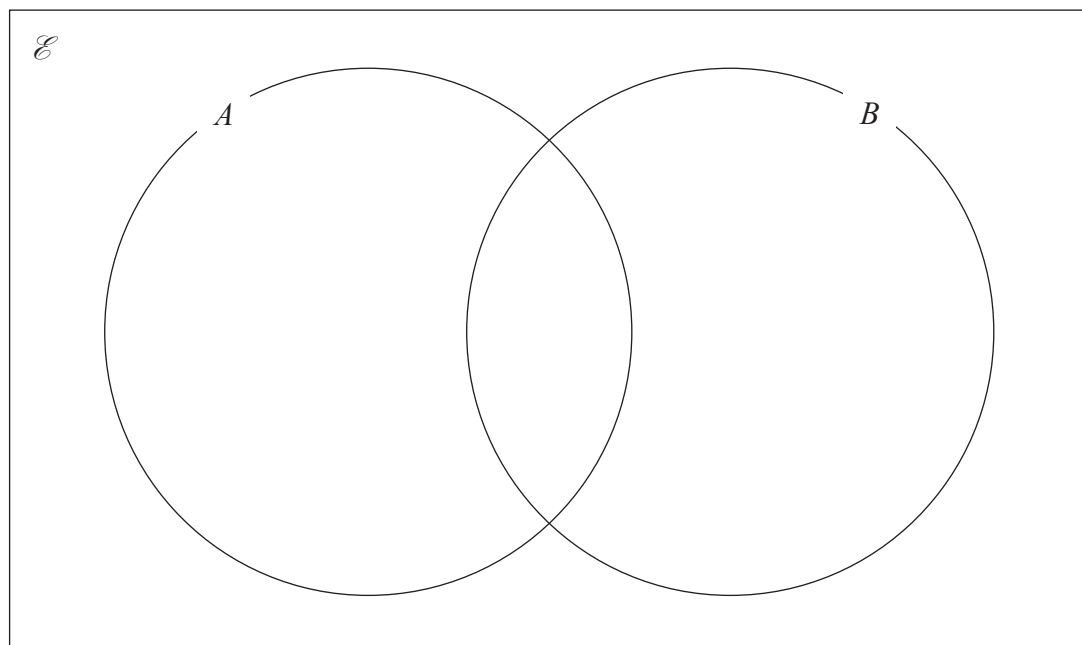
Question 11

June 2023 · Paper 1 · Q5

5 marks

- 5 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
 $A = \{\text{odd numbers}\}$
 $B = \{\text{square numbers}\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set $\mathcal{E}$

(b) Find the probability that this number is in the set B'

.....
(2)

(Total for Question 5 is 5 marks)

P8 Combined Events: Independent and Dependent

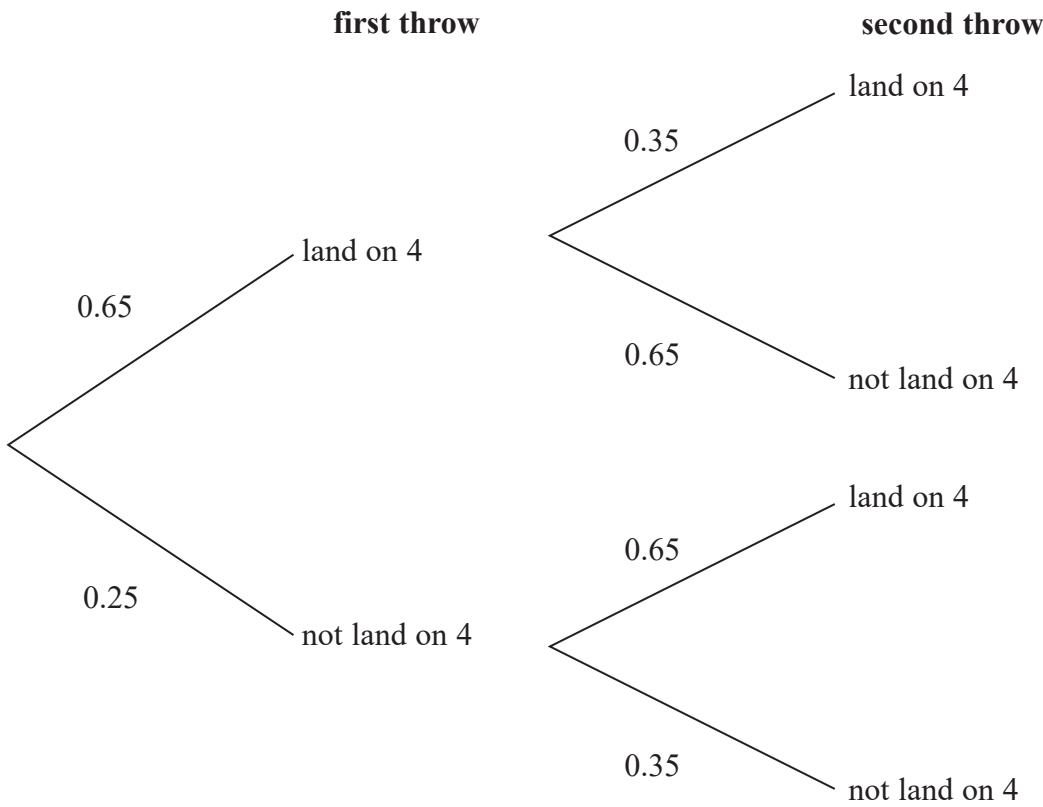
Question 12

June 2018 · Paper 3 · Q4

2 marks

4 When a biased 6-sided dice is thrown once, the probability that it will land on 4 is 0.65
The biased dice is thrown twice.

Amir draws this probability tree diagram.
The diagram is **not** correct.



Write down **two** things that are wrong with the probability tree diagram.

1.....

.....

2.....

.....

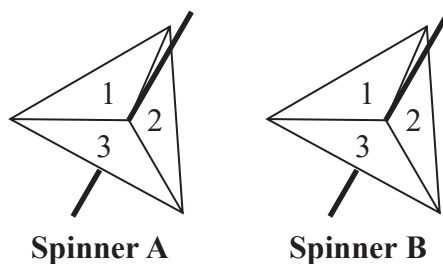
(Total for Question 4 is 2 marks)

Question 13

November 2020 · Paper 3 · Q5

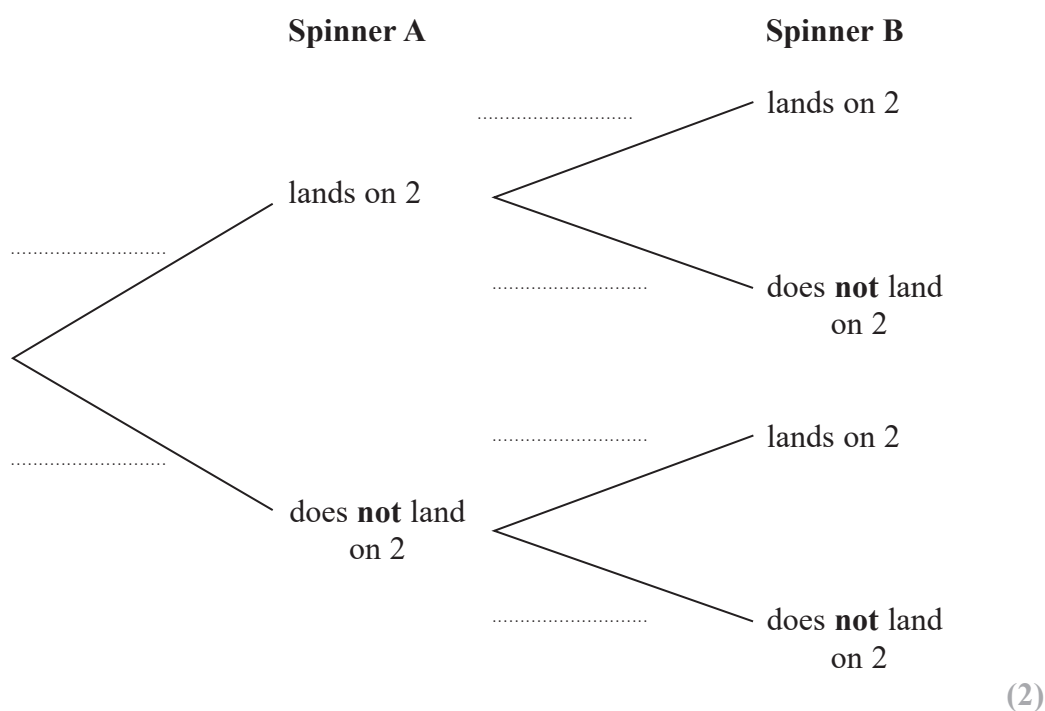
4 marks

- 5 Amanda has two fair 3-sided spinners.



Amanda spins each spinner once.

- (a) Complete the probability tree diagram.



- (b) Work out the probability that Spinner A lands on 2 and Spinner B does **not** land on 2

(2)

(Total for Question 5 is 4 marks)

Question 14

June 2024 · Paper 3 · Q6

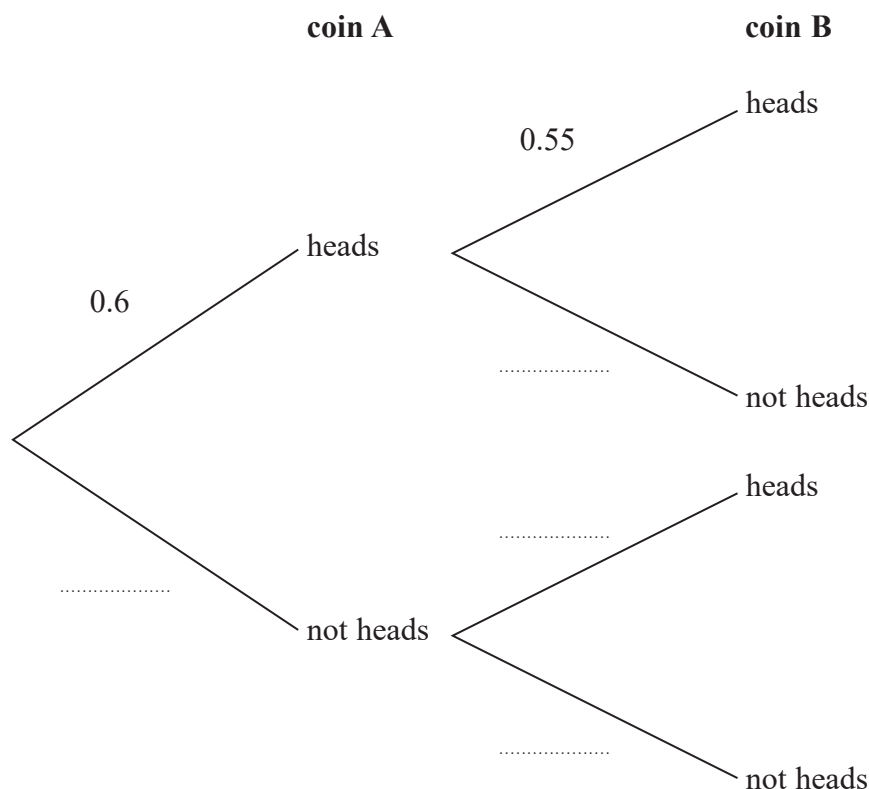
4 marks

- 6 Tim has two biased coins, coin **A** and coin **B**.
He is going to throw both coins.

The probability that coin **A** will land on heads is 0.6

The probability that coin **B** will land on heads is 0.55

- (a) Complete the probability tree diagram.



(2)

Tim throws coin **A** once and he throws coin **B** once.

- (b) Work out the probability that both coins land on heads.

(2)

(Total for Question 6 is 4 marks)

Question 15

November 2024 · Paper 3 · Q4

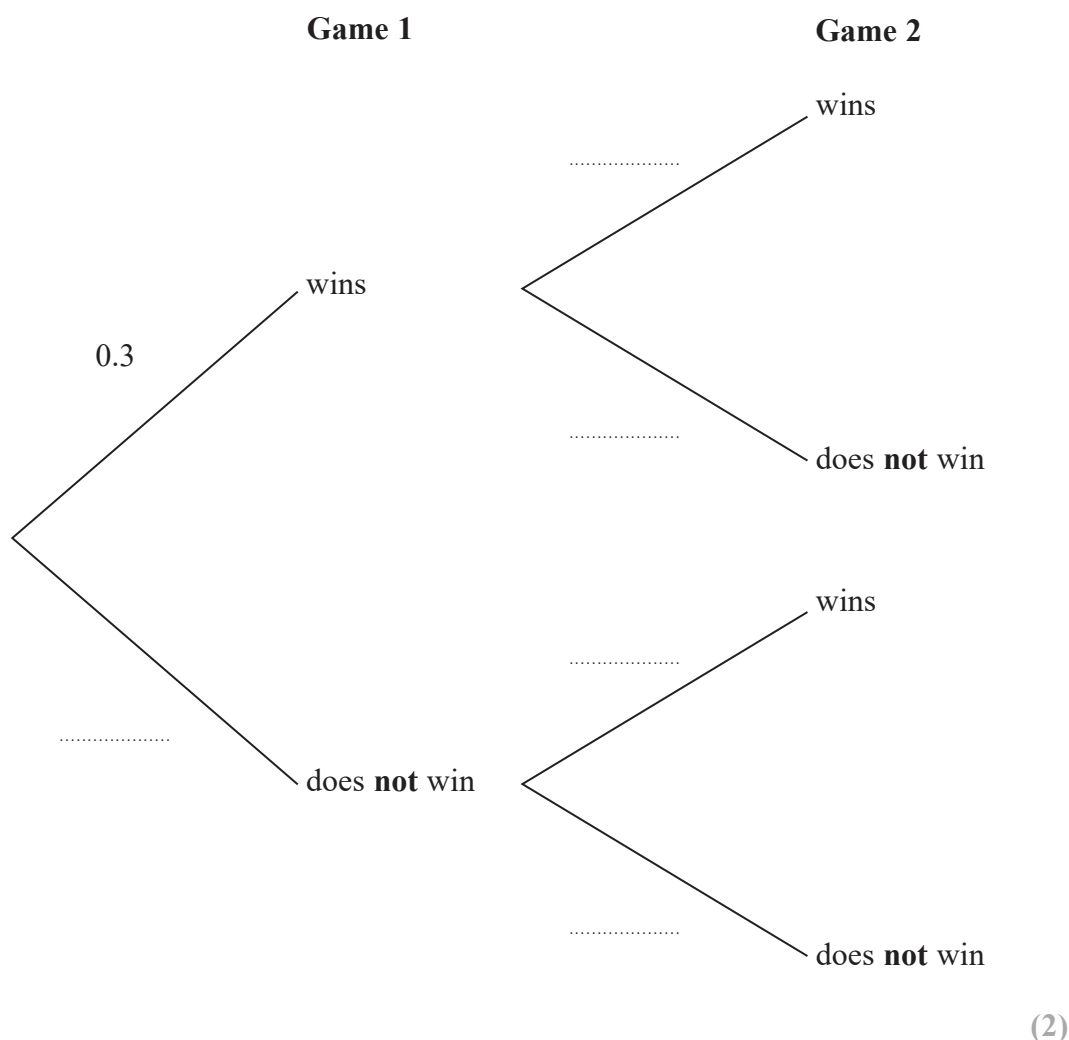
4 marks

4 Dan is playing cards.

The probability that he will win a game of cards is 0.3

Dan plays two games of cards.

(a) Complete the probability tree diagram.



(b) Work out the probability that Dan does **not** win either game.

.....
(2)

(Total for Question 4 is 4 marks)