MME
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GCSE MATHEMATICS

AQA | Edexcel | OCR | WJEC

(Level 5 - 8)

Tree Diagrams (Probability)

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You must ***not*** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

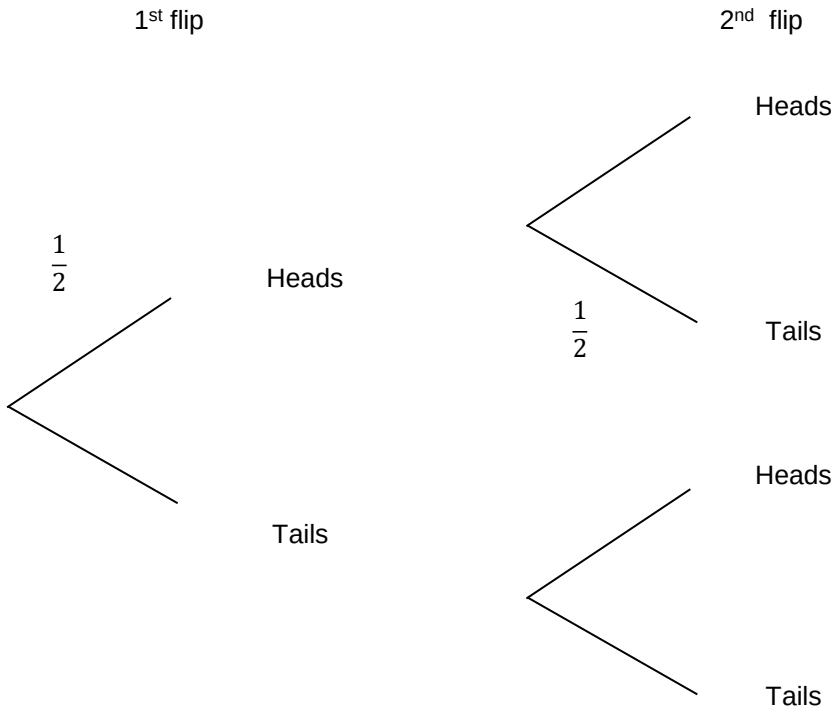
Advice

- In all calculations, show clearly how you work out your answer.

1 Ben flips an unbiased coin 2 times. *(Level 5)*

1(a) Complete the probability tree below, to show the results of the two flips.

[2 marks]



1(b) Hence, or otherwise, calculate the probability that both flips land on heads.

[2 marks]

Answer _____

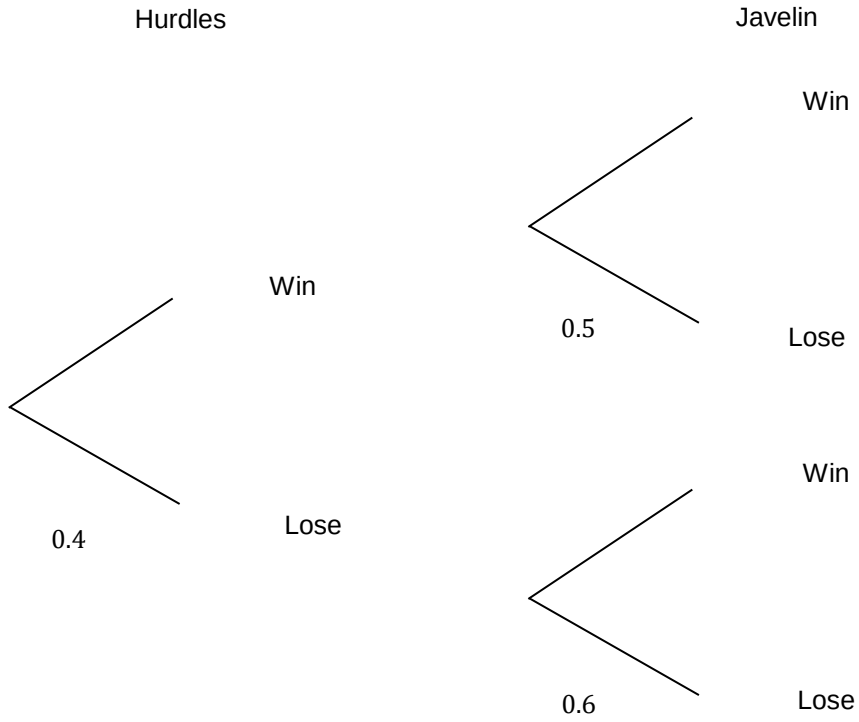
Turn over for next question

4

2 Katie completes two events at her school sports day, hurdles and javelin. *(Level 5)*

2(a) Complete the probability tree diagram below showing the probabilities of Katie winning each event.

[2 marks]



2(b) Calculate the probability that Katie wins one event and loses the other.

[2 marks]

Answer _____

Turn over for next question

4

3 The probability of Ben completing his Maths homework on any night is $1/3$. *(Level 5)*

The probability that he completes his English homework is $1/4$.

These are both independent events.

3(a) In the space below, draw a probability tree diagram to represent this information

[3 marks]

3(b) Calculate the probability that Ben completes both pieces of homework

[1 mark]

Answer _____

3(c) Calculate the probability that Ben completes exactly one piece of homework

[2 marks]

Answer _____

Turn over for next question

6

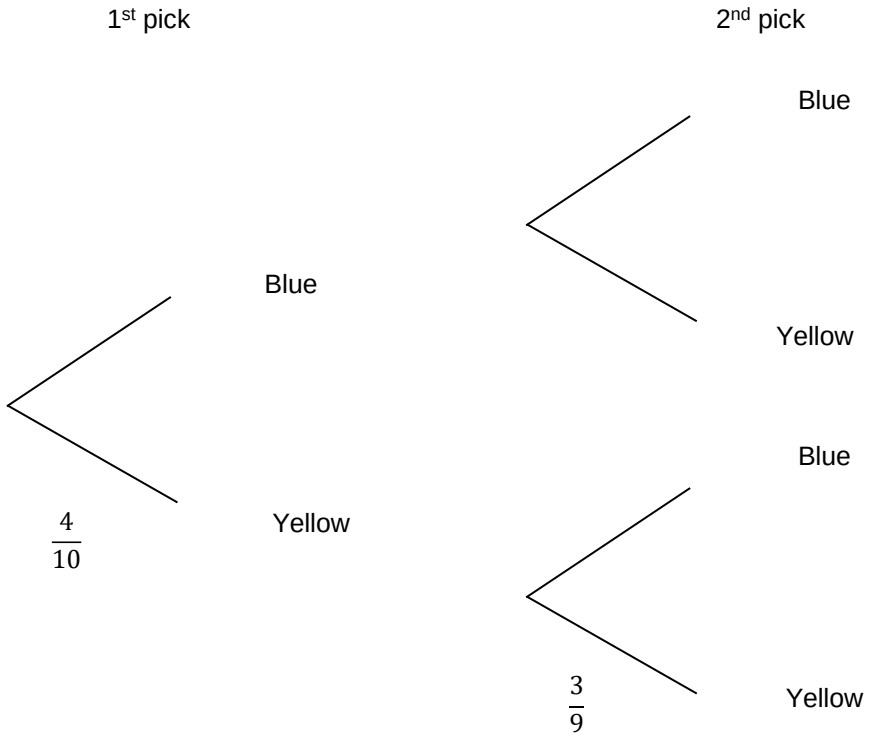
4 10 counters are in a bag, 6 are blue and 4 are yellow. *(Level 6)*

One counter is taken from the bag at random and not replaced.

A second counter is then taken from the bag at random.

4(a) Complete the probability tree diagram below showing the probabilities of taking counters from the bag.

[2 marks]



4(b) Calculate the probability that after the second pick, 1 blue counter and 1 yellow counter has been removed from the bag.

[2 marks]

Answer _____

Turn over for next question

4

5 There are 5 red balls and 6 green balls in a bag. *(Level 7)*

One ball is drawn from the bag, then another without replacement.

5(a) In the space below, draw a probability tree diagram to represent this information

[3 marks]

5(b) Calculate the probability that one red and one green ball are taken from the bag.

[2 marks]

Answer _____

5(c) Calculate the probability that the two balls drawn are the same colour.

[2 marks]

Answer _____

7

6 There are x balls in a bag. *(Level 8)*

8 of the balls are blue.

3 of the balls are green.

The rest of the balls are orange and pink.

Jake takes two balls from the bag without replacement.

The probability that he takes a blue then green ball is 1/10.

Find the total number of balls in the bag.

[5 marks]

Answer _____

5

END