Conditional probability without replacement

Grade 9 | Higher | 5 questions, 22 marks

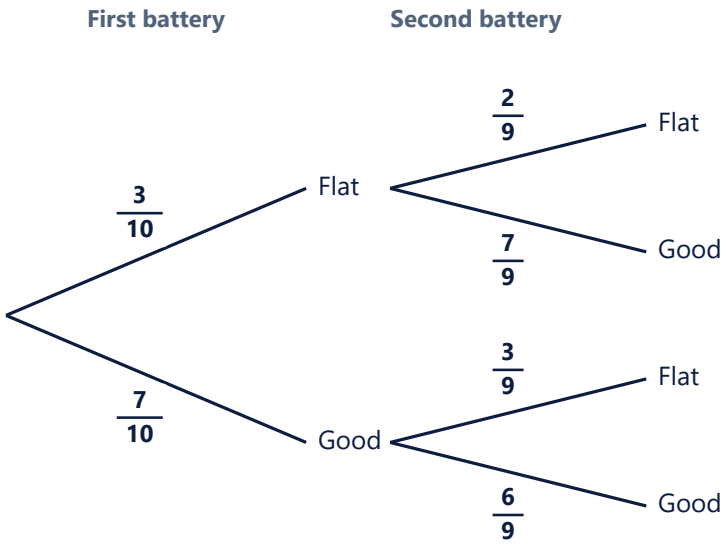
GCSE Statistics topic practice

Name: _____ **Date:** _____ **Score:** _____ **/ 22**

1 A box contains 10 batteries. 3 of the batteries are flat and 7 are good. Aisha takes two batteries from the box at random, without replacement. The probability tree diagram shows this information.

a. Work out the probability that both batteries are flat. (1)

b. Work out the probability that exactly one of the two batteries is flat. (2)



(3 marks)

2 A bag contains 5 mints and 3 toffees. Callum takes three sweets from the bag at random, one after the other, and eats them.

a. Work out the probability that the three sweets are all the same type. (3)

b. Work out the probability that Callum eats at least one sweet of each type. (1)

(4 marks)

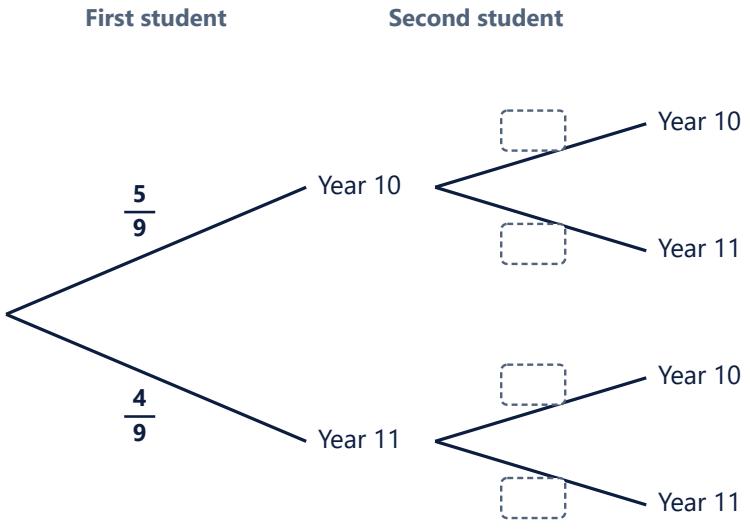
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3 A focus group is made up of 5 students from Year 10 and 4 students from Year 11. A researcher picks two of these 9 students at random, one after the other, to interview. No student can be picked twice.

a. Complete the probability tree diagram. (1)

b. Work out the probability that the two students picked are from the same year group. (2)

c. Given that the two students picked are from the same year group, work out the probability that they are both from Year 11. (2)



(5 marks)

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4 A tin contains n biscuits. 3 of the biscuits are chocolate and the rest are plain. Zara takes two biscuits from the tin at random and eats them. The probability that both of her biscuits are chocolate is $\frac{1}{12}$

a. Show that $n(n - 1) = 72$ (2)

b. Find the value of n, and work out the probability that both of Zara's biscuits are plain. (3)

(5 marks)

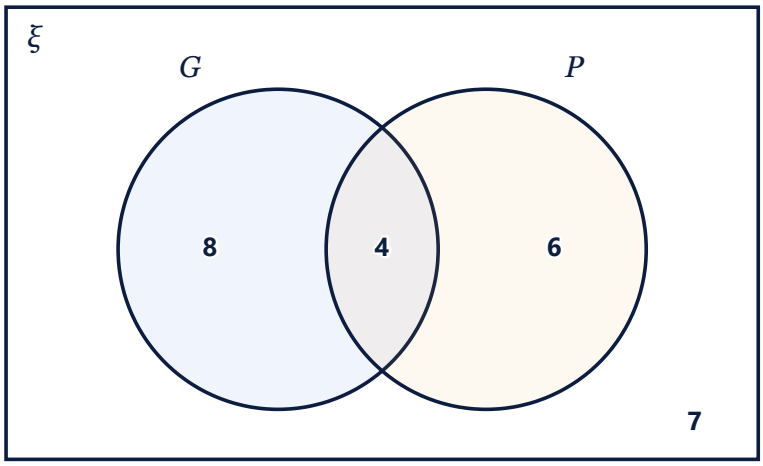
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5 The Venn diagram shows how many of the 25 students in a music class play the guitar (G) and how many play the piano (P).

a. A student who plays the piano is picked at random. Write down the probability that this student also plays the guitar. (1)

b. Two of the 25 students are picked at random, without replacement. Work out the probability that both of them play the guitar. (2)

c. Given that both of the students picked play the guitar, work out the probability that both of them also play the piano. (2)



(5 marks)

End of questions | Total 22 marks

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