

Conditional probability with tree diagrams

Grade 6 | Higher | 15 questions, 57 marks

GCSE Maths topic practice



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Name: _____ **Date:** _____ **Score:** _____ / 57

- 1** A bag contains 4 red counters and 6 blue counters.
Two counters are taken from the bag at random, without replacement.
Work out the probability that the two counters are different colours.

(3 marks)

Answer _____

- 2** A bag contains 3 red counters and 5 blue counters. Two counters are taken at random without replacement.
- a. Write down the probability that the first counter is red, and the probability that the second is blue given that the first was red.
 - b. Work out the probability that the first is red and the second is blue.
 - c. Work out the probability that both counters are blue.

(3 marks)

Answer _____

- 3** Five cards are numbered 1, 2, 3, 4 and 5.
Two cards are taken at random, without replacement.
The two numbers are multiplied together.
Work out the probability that the product is even.

(3 marks)

Answer _____

- 4** A box contains 5 green pegs and 3 white pegs.
Two pegs are taken from the box at random, without replacement.
Work out the probability that both pegs are green.

(3 marks)

Answer _____

- 5** A bag contains 6 red counters and 4 blue counters. Two counters are taken at random without replacement.
- Given that the first counter is red, write down the probability that the second counter is blue.
 - Work out the probability that the two counters are the same colour.

(4 marks)

Answer _____

- 6** A box contains 12 chocolates: 5 dark and 7 milk. Ravi takes two chocolates at random without replacement.
Work out the probability that at least one of the chocolates is dark.

(3 marks)

Answer _____

- 7** A bag contains 7 red beads and 5 blue beads.
Two beads are taken from the bag at random, without replacement.
Work out the probability that exactly one of the beads is red.

(4 marks)

Answer _____

- 8** A packet contains 9 mints and 5 toffees. Chloe takes two sweets at random without replacement.

Work out the probability that the second sweet is a toffee.

(3 marks)

Answer _____

- 9** The probability that Ravi cycles to work on Monday is 0.7.

If he cycles on Monday, the probability that he cycles on Tuesday is 0.9.

If he does not cycle on Monday, the probability that he cycles on Tuesday is 0.4.

Work out the probability that Ravi cycles to work on Tuesday.

(4 marks)

Answer _____

- 10** A drawer contains 8 black socks and 6 white socks. Two socks are taken at random without replacement.

Given that the two socks are the same colour, work out the probability that they are both white.

(4 marks)

Answer _____

- 11** Six cards are numbered 1, 2, 3, 4, 5 and 6.

Two cards are taken at random, without replacement.

The two numbers are added together.

Work out the probability that the sum is even.

(4 marks)

Answer _____

- 12** A tin contains 12 chocolates. 5 are dark chocolate and 7 are milk chocolate.
Nina takes two chocolates at random, without replacement.
Work out the probability that she takes at least one dark chocolate.

(4 marks)

Answer _____

- 13** A bag contains 5 blue counters and 7 white counters.
Tom takes 3 counters from the bag at random, one at a time, without replacement.
He takes 2 blue counters and 1 white counter.
- Write down the number of blue counters left in the bag.
 - Tom now takes two more counters at random, without replacement. Work out the probability that both of these counters are white.

(5 marks)

Answer _____

- 14** A bag contains 4 red discs and 8 blue discs.
Meg takes two discs from the bag at random, without replacement.
Meg says,
"The probability that both discs are blue is more than three times the probability that both discs are red."
Is Meg correct? You must show your working.

(5 marks)

Answer _____

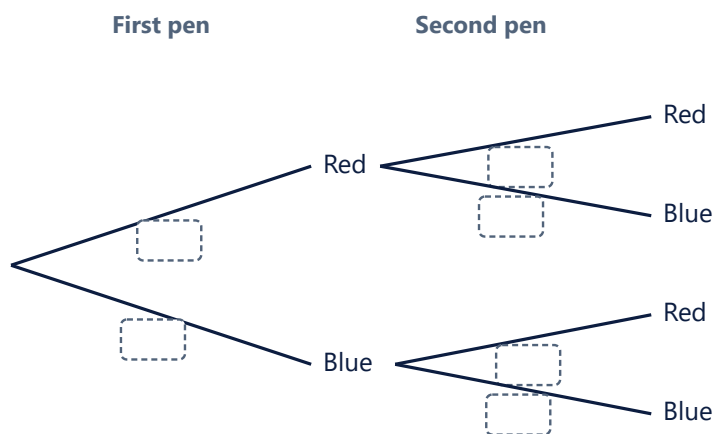
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A box contains 5 red pens and 4 blue pens.

Milo takes a pen at random and does **not** replace it.

He then takes a second pen at random.

- Complete the probability tree diagram.
- Work out the probability that Milo takes at least one red pen.



(5 marks)

Answer

End of questions | Total 57 marks