Name:

Exam Style Questions

Conditional Probability

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Video 247

1. There are 10 sweets in a bag.
    Three are lemon flavoured and seven are strawberry flavoured.
    Two sweets are selected at random.

    Calculate the probability that

    (a) both sweets are strawberry flavoured

    ....

    (2)

    (b) one sweet is lemon flavoured and one sweet is strawberry flavoured

    ....

    (2)

2. There are 12 tiles in a bag.

    | C | O | R | B | E | T | T | M | A | T | H | S |

    Jim chooses two tiles at random from the bag.

    What is the probability that the two tiles have the same letter?
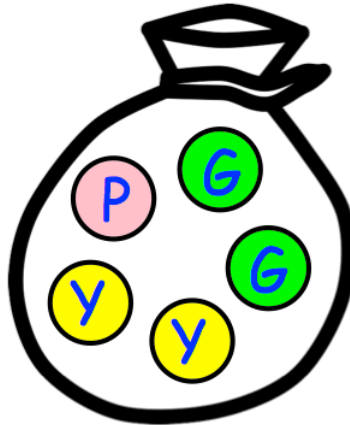
    ....

    (3)

3. Alex and Beth are two of the six finalists in an art competition.
    The two best selected finalists will win a prize.

    Find the probability that Alex and Beth are selected.

    ....

    (3)

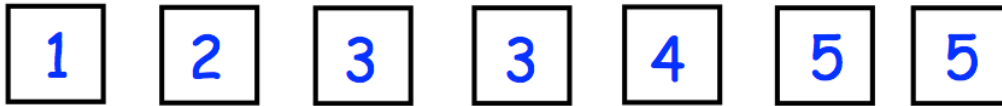4. There are five counters in a bag.

    Two counters are green, two counters are yellow and one counter is pink.
    Two counters are selected **without** replacement

    Find the probability that both counters are yellow.

    ....

    (2)

5. Guy has seven cards, each labelled with a number.

| 1 | 2 | 3 | 3 | 4 | 5 | 5 |

Guy chooses two cards at random **without** replacement.

Calculate the probability that the numbers on the two cards add up to 6.

....

(4)

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6. There are 50 students in Year 11.
Each student studies one language.

	French	German
Female	13	15
Male	5	17

Two of these students are selected at random.

Calculate the probability that the two chosen students study the same language.

....

(4)

7.   Samantha has 10 black socks, 8 white socks and 2 blue socks.
      She picks two socks at random, without replacement.

      Calculate the probability she chooses two socks of the same colour.

      ....
                                                                          (4)

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8.   A bag contains discs, each with a letter written on it.

      (M) (A) (T) (H) (E) (M) (A) (T) (I) (C) (S)

      One disc is taken at random from the bag.
      The disc is not replaced.
      Another disc is taken at random from the bag.

      Calculate the probability that exactly one M is taken from the bag.

      ....
                                                                          (5)

9.   Jeremy has two bags of beads.
      Bag 1 contains 7 blue beads and 3 yellow beads
      Bag 2 contains 11 blue beads and 4 yellow beads

      Jeremy rolls an fair six-sided dice.

      If he rolls a number less than three, he takes a marble from bag 1.
      If he does **not** roll a number less than three, he takes a marble from bag 2.

      Work out the probability that Jeremy chooses a yellow marble.

                                                                ....
                                                                                (4)

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10.   There are 8 sweets in a bag.
      Three sweets are red, three sweets are blue and two sweets are green.

      Three sweets are selected at random **without** replacement.

      Calculate the probability that the sweets are **not** all the same colour.

                                                                ....
                                                                                (4)

11. Thomas is playing tennis.

If it is windy the probability that he serves an ace is 0.1
If it is not windy the probability that he serves an ace is 0.25

The probability that it is windy is 0.3

Calculate the probability that Thomas serves an ace.

....

(4)

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12. Jenny and Penny are identical twins.
They are in the same mathematics class, which has a total of twenty students.

The teacher selects two students at random to go on a trip.

Calculate the probability that at least one twin will go on the trip.

....

(4)

13. Martina has some coins.

Martina has to pay 60p for a car park ticket.
She selects 3 coins at random, without replacement, from her pocket.

Work out the probability that she has chosen the exact price of the ticket.

....

(4)

14. There are 20 passengers on a flight from London to Paris.
60% of the passengers are from England.
The rest are from France.
Four passengers are chosen at random to complete a survey.

Calculate the probability that all four passengers are French.

....

(3)

15. Kevin has two bags, each containing four discs.
    Bag 1 contains three discs labelled two and one disc labelled one.
    Bag 2 contains two discs labelled three, one disc labelled one and one disc labelled two.

Bag 1   Bag 2
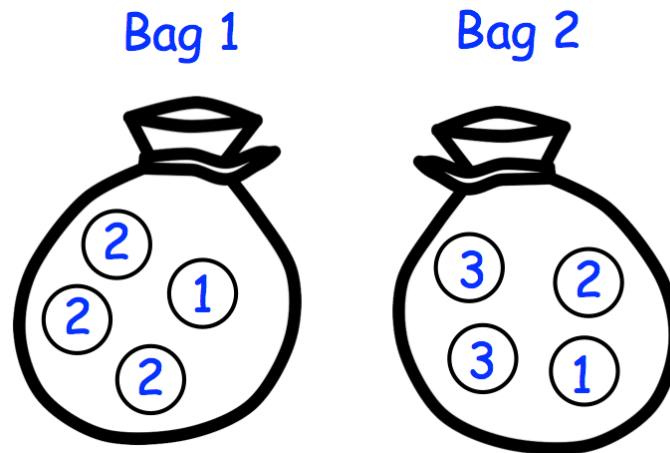
Kevin chooses a disc at random from bag 1.
If the disc is labelled 1, he puts the disc in bag 2.
If the disc is labelled 2, he does **not** put the disc in bag 2.
Kevin then chooses a disc at random from bag 2.

Kevin adds together the numbers from the two discs he selected to give his score.

Find the probability of Kevin scoring 4.

....

(4)

16. Rebecca has 9 cards, each with a number on it.

$$2 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 6 \quad 7 \quad 9$$

She picks three cards at random, without replacement.
Rebecca multiplies the three numbers to get a score.

Calculate the probability that the score is an even number

....

(4)

17. There are x apples in a crate.
4 of the apples are bad.

Fiona chooses two apples from the crate, without replacement.
The probability she selects two bad apples is $^1/_{11}$

(a) Prove $x^2 - x - 132 = 0$

(3)

(b) Find x, the number of apples in the crate.

....

(2)