

Probability

Videos 244, 245, 250 on Corbettmaths

Examples

Workout



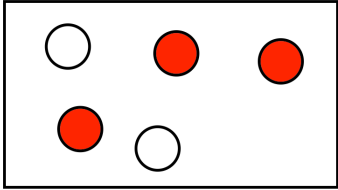
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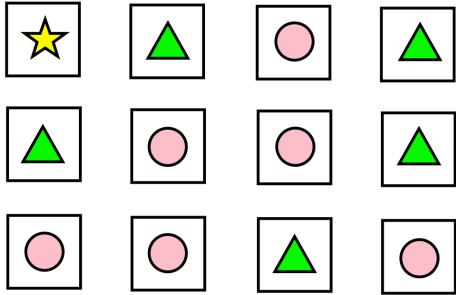
Question 1: Theo has 3 red sweets and 2 white sweets.
He picks a sweet at random.

- (a) Write down the probability that Theo picks a red sweet.
- (b) Write down the probability that Theo picks a white sweet.



Question 2: Leah has 12 cards, each with a shape on it.
She takes a card at random.

- (a) What is the probability that Leah takes a card with a star on it?
- (b) What is the probability that Leah takes a card with a triangle on it?
- (c) What is the probability that Leah takes a card with a circle on it?



Question 3: Ralph has 9 cards, each with a number on it.



He picks a card at random.
Write down the probability that the chosen card is

- (a) the number 8
- (b) an even number
- (c) a number less than 7
- (d) a multiple of 4
- (e) a square number
- (f) a prime number

Question 4: There are 12 red roses, 5 yellow roses and 3 white roses in a vase.
Felix takes a rose, at random, from the vase.

- (a) Write down the probability that he takes a white rose.
- (b) Write down the probability that he takes a red **or** a white rose.
- (c) Write down the probability that Felix takes a rose that is **not** red.

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Question 5: Leon throws a biased coin.
The probability of getting tails is 0.4
Work out the probability of getting heads.



Question 6: Edith plants a daffodil bulb.
The probability that the bulb will grow is 0.8
What is the probability that the bulb will **not** grow?

Question 7: Wycombe Wanderers play a match of football.
The probability that they win the match is 0.28
The probability that they draw the match is 0.55
Work out the probability that they lose the match.

Question 8: Evelyn has 80 pens in a drawer.
15 pens are black and the other pens are blue.

Evelyn picks a pen at random from the drawer.

- (a) What is the probability that Evelyn picks a black pen?
(b) What is the probability that Evelyn picks a blue pen?



Question 9: There are 20 counters in a bag.

2 of the counters are white.
1 of the counters is pink.
4 of the counters are black.
The rest of the counters are purple.

Carter takes a counter at random from the bag.

Show that the probability that the counter is white or purple is $\frac{3}{4}$

Question 10: There are only pink, yellow, green and blue counters in a bag.
The table shows the probability that a counter taken at random from the bag will be pink, green or blue.

Colour	Pink	Yellow	Green	Blue
Probability	0.5		0.1	0.2

- (a) Work out the probability that the counter taken is yellow

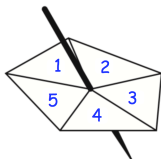
There are 40 counters in the bag.

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

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- Question 11: Darcy has a biased spinner.
A spinner has sections labelled 1, 2, 3, 4 and 5.
The table below shows information about some of the probabilities



Number	1	2	3	4	5
Probability	x	0.15	0.05	0.2	0.35

Work out the value of x .

- Question 12: Frederick organises a raffle for his school fayre.
The top prize is a ride in a hot air balloon, which will be won by 1 ticket.
Altogether Frederick sells 700 raffle tickets.
Miss Robinson buys 5 tickets for the raffle.



Work out the probability that Miss Robinson does **not** win.

- Question 13: There are 20 sweets in a box.
The probability that a chocolate is picked at random from the box is 0.6
How many chocolates are in the box?

- Question 14: A bag contains 600 coloured counters.
The counters are yellow, brown or orange.
There are 117 yellow counters in the bag.
The probability that a brown counter is chosen from the bag is 0.35

Calculate the number of orange counters in the bag.

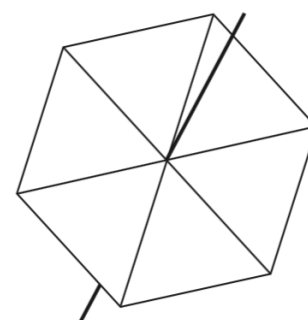
Apply

- Question 1: Megan has a fair 6 sided spinner.
The spinner has the letters A, B and C on it.

The probability that the spinner will land on an A is $\frac{1}{2}$

The probability that the spinner will land on a C is $\frac{1}{3}$

Write the letters on the spinner.



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Question 2: Elliott has eight numbered cards.



One of the cards is chosen at random.

Elliott says:

The probability of a 8 is $\frac{1}{4}$

The range of the numbers is 5.

The probability of a number greater than 10 is 0.

The probability of a 7 is $\frac{1}{2}$

Fill in the six missing numbers.

Question 3: The two-way table gives information about 90 people who sat their driving test.

(a) Complete the two-way table

A person is picked at random.

(b) Write down the probability that the person failed their driving test.

(c) Write down the probability that the person had under 20 driving lessons.

	Under 20 driving lessons	20 or over driving lessons	total
Pass		21	30
Fail	45		
total			90

Somebody who passed their driving test is picked at random.

(d) Work out the probability that this person had under 20 driving lessons.

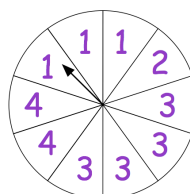
Question 4: Isaac has made two fair spinners.
Spinner 1 has 10 equal sized sections.
Spinner 2 has 4 equal sized sections.

Isaac says

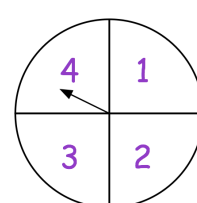
“It is more likely to get a 4 on spinner 1 than spinner 2 because there are two number 4s on spinner 1 and only one number 4 on spinner 2.”

Explain why Isaac is incorrect.

Spinner 1



Spinner 2



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Question 5: The table shows the shoe size of 23 students.

Shoe Size	Frequency
5	2
6	11
7	5
8	4
9	1

A student is picked at random.

- (a) Work out the probability that the student has a shoe size of 8.
 (b) Work out the probability that the student has a shoe size of 7 or smaller.

Question 6: A football team can win, draw or lose a match.
 The table shows the probabilities of each result.

Result	Win	Draw	Lose
Probability		0.05	0.3

Each win is worth 3 points.
 Each draw is worth 1 point.
 Each loss is worth 0 points.
 The football team plays 40 games in a season.

Work out how many points the football team should receive in one season.

Question 7: Beatrice has a biased four sided spinner.
 The table shows the probabilities that the spinner will land on a 2 or 3.

Number	1	2	3	4
Probability		0.1	0.3	

The probability that the spinner will land on 1 is three times the probability that the spinner will land on 4.

Work out the probability that the spinner will land on 1.

Question 8: Finn has some sweets in a bag.
 5 of the sweets are lemon flavoured.
 7 of the sweets are strawberry flavoured.
 The rest of the sweets are mint flavoured.

The probability that Finn takes a mint flavoured sweet is $\frac{2}{5}$

How many mint flavoured sweets are in the bag?

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Question 9: Gracie has more than 5 coins.
The total value of the coins is 50p.

Gracie is going to pick one of the coins at random.

The probability that Gracie picks a **1p** coin is $\frac{1}{5}$

List all the coins that Gracie has.

Question 10: A box contains lego blocks of the same size.
Each block is white, blue, green or red.

Colour	White	Blue	Green	Red
Probability	0.25	0.45		0.2

The table shows the probabilities that a block picked at random is white, blue or red.

(a) Work out the probability of a green block

There are 60 red lego blocks.

(b) How many white lego blocks are there?

Question 11: A bag contains good and bad apples.
 n of the apples are good.
The other 5 apples are bad.

(a) Write down an expression, in terms of n , for the number of apples in the bag altogether.

Maryam will take at random, an apple from the bag.

(b) Write down an expression, in terms of n , for the probability that Maryam will take a good apple.

(c) Write down an expression, in terms of n , for the probability that Maryam will take a bad apple.

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Question 12: There are only red, black and green pens in a box.

There are three times as many red pens as green pens.
There are four as many black pens than red pens.

Work out the probability of a black pen being selected.

Answers



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