

Probability Toolkit

Question Paper

Course	Edexcel IGCSE Maths
Section	6. Statistics & Probability
Topic	Probability Toolkit
Difficulty	Easy

Time allowed: 60
Score: /45
Percentage: /100

Question 1

The probability that a biased dice will land on a five is 0.3

Megan is going to roll the dice 400 times.

Work out an estimate for the number of times the dice will land on a five.

[2 marks]

Question 2a

Jane has a packet of seeds.

The probability that a seed will grow is 0.75

What is the probability that a seed will **not** grow?

[1 mark]

Question 2b

Jane plants 200 of these seeds.

Estimate the number of the seeds that will grow.

[2 marks]

Question 3a

There are some green counters, some yellow counters, some blue counters and some red counters in a bag.

The table shows the probabilities that a counter taken at random from the bag will be green or yellow or red.

Colour	Green	Yellow	Blue	Red
Probability	0.16	0.4		0.24

Mary takes at random a counter from the bag.

Work out the probability that the counter will be blue.

[2 marks]

Question 3b

Mary puts the counter back into the bag.

There are 125 counters in the bag.

Work out the number of green counters in the bag.

[2 marks]

Question 4a

There are some black pens, some blue pens, some red pens and some green pens in a box.

The table shows the probabilities that a pen taken at random from the box will be black or will be blue or will be red.

colour	black	blue	red	green
probability	0.3	0.2	0.4	

There are 200 pens in the box.

Work out the number of black pens in the box.

[2 marks]

Question 4b

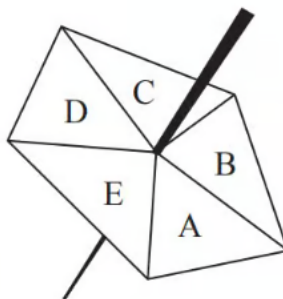
A pen is taken at random from the box.

Work out the probability that the pen will be green.

[2 marks]

Question 5a

Here is a five-sided spinner.



The table shows the probabilities that the spinner will land on A or on B or on C or on D.

Letter	A	B	C	D	E
Probability	0.25	0.10	0.20	0.15	

Kirsty spins the spinner once.

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

[2 marks]

Question 5b

Chris is going to spin the spinner 60 times.

Work out an estimate for the number of times the spinner will land either on A or on B.

[3 marks]

Question 6

Each time John plays a game, the probability that he wins the game is 0.65

John is going to play the game 300 times.

Work out an estimate for the number of games that John wins.

[2 marks]

Question 7a

A tin contains tea bags with a choice of four different flavours of tea.

The four flavours of tea are Assam or Darjeeling or Nilgiri or Rize.

Sara takes at random a tea bag from the tin.

The table shows each of the probabilities that the flavour of the tea Sara takes is Assam or Darjeeling or Rize.

Flavour of tea	Assam	Darjeeling	Nilgiri	Rize
Probability	0.38	0.24		0.16

Work out the probability that the flavour of the tea Sara takes is Nilgiri.

[2 marks]

Question 7b

Work out the probability that the flavour of the tea Sara takes is either Darjeeling or Rize.

[2 marks]

Question 8

The probability that a spinner will land on blue is 0.4

Rayyan is going to spin the spinner 280 times.

Work out an estimate for the number of times the spinner will land on blue.

[2 marks]

Question 9

There are some ice lollies in a freezer.

The flavour of each ice lolly is banana or strawberry or mint or chocolate.

Julius takes at random an ice lolly from the freezer.

The table shows the probabilities that the flavour of the ice lolly that Julius takes is banana or strawberry or chocolate.

Flavour	banana	strawberry	mint	chocolate
Probability	0.35	0.32		0.12

Work out the probability that the flavour of the ice lolly that Julius takes is either strawberry or mint.

[3 marks]

Question 10

A biased coin is thrown 250 times.

The relative frequency of Heads is worked out after every 50 throws.

Total number of throws	50	100	150	200	250
Relative frequency	0.4	0.29	0.4	0.32	0.3

Circle the best estimate of the probability of Heads.

0.3

0.32

0.342

0.4

[1 mark]

Question 11

The probability of Heads when a biased coin is thrown is 0.6

The coin is thrown 500 times.

Circle the expected number of Tails.

20

200

250

300

[1 mark]

Question 12a

Dora has the following number cards.



She takes a card at random, replaces the card and then takes a second card. She adds the numbers on the two cards she has taken and records the total.

Complete the following table to show all of her possible totals.

		First card				
Total		2	2	3	5	6
Second card	2	4	4	5	7	8
	2	4	4	5		8
	3	5	5		8	9
	5	7		8	10	11
	6	8	8	9	11	12

[1 mark]

Question 12b

Find the probability that her total is

i) an even number,

[2]

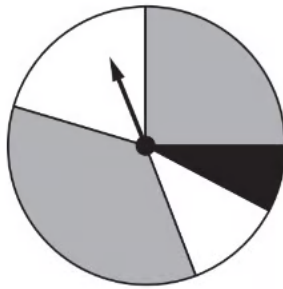
ii) a multiple of 3 or 4.

[2]

[1 mark]

Question 13

This spinner has two grey sections, two white sections and one black section.



Vlad says

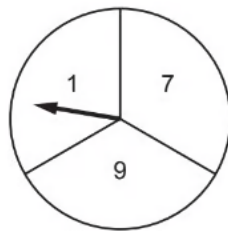
The probability of the spinner landing on black is $\frac{1}{5}$.

Explain why Vlad is not correct.

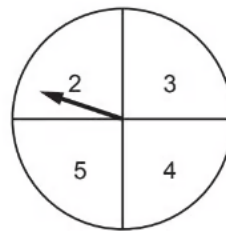
[1 mark]

Question 14a

Geoff has two fair spinners.



Spinner A



Spinner B

He spins both spinners and **multiplies** the numbers on each spinner.

Complete the table.

		Spinner A		
		1	7	9
Spinner B	2	2	14	18
	3	3	21	27
	4	4	28	
	5	5	35	
	x	1	7	9

[1 mark]

Question 14b

Geoff wants to work out the probability that the outcome of the multiplication is an even number or a prime number. Here is his working.

The probability the outcome is an even number is $\frac{6}{12}$
The probability the outcome is a prime number is $\frac{3}{12}$
The probability the outcome is an even number or a prime number is $\frac{6}{12} + \frac{3}{12} = \frac{9}{12}$

Geoff is wrong.

Explain his error and give the correct answer.

[2 marks]

Question 15a

Jeat is growing carrots from seed in his garden.

He plants 28 carrot seeds but only 12 grow.

Jeat says

The probability of one of my carrot seeds growing is $\frac{3}{7}$.

Use Jeat's result to show that he is correct.

[1 mark]

Question 15b

A farmer uses this probability to calculate how many carrot seeds he should plant to grow 10000 carrots.

(i)

How many seeds should he plant?

..... seeds [2]

(ii)

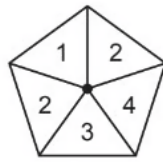
Explain why it may not be sensible for the farmer to use Jeat's experimental probability to calculate the number of seeds he should plant.

[1]

[3 marks]

Question 16

This is a fair 5-sided spinner.



Ciara spins the spinner twice and records the product of the two scores.

i)
Complete the table.

		First spin				
		x	1	2	2	3
Second spin	1	1				
	2			4		
	2					
	3					
	4					12

[2]

ii)
Find the probability that the product is a multiple of 3.

[2]

[4 marks]