Name:

Exam Style Questions

Relative Frequency

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 248

1. Josie wants to test if a coin is biased.
   She flips the coin 30 times.
   Here are here results.

$$\begin{array}{cccccccccc} H & T & H & T & H & H & H & T & H & H \\ H & T & H & H & H & T & H & H & H & T \\ H & H & H & H & T & H & H & H & T & H \end{array}$$

(a) Complete the relative frequency table.

	Heads	Tails
Relative frequency		

(2)

(b) Do you think the coin is biased?
Explain your answer.

....

....

(1)

(c) Josie decides to flip the coin 150 times.
Calculate an estimate of the number of times that the coin will land on tails.

....

(2)

2. Kevin rolls a dice 30 times.

3 4 4 4 6 5 4 5 6 4
1 3 2 4 4 5 6 4 4 2
4 5 6 3 2 3 5 6 2 3

(a) Complete the relative frequency table.

Number on dice	1	2	3	4	5	6
Relative frequency						

(2)

(b) Do you think the dice is biased?
     Explain your answer.

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(1)

(c) Kevin decides to roll the dice 600 times.
     Calculate an estimate of the number of times that the dice will land on 4.

....

(2)

3. David and Becky want to estimate how many yellow jelly beans are in a tub
    of 500 jelly beans.
    A trial consists of taking a jelly bean at random, noting the colour and replacing
    the jelly bean in the tub.

	Number of trials	Number of yellow jelly beans chosen
David	20	3
Becky	100	11

(a) Write down the relative frequency of David taking a yellow jelly bean.

....
(1)

(b) Write down the relative frequency of Becky taking a yellow jelly bean.

....
(1)

(c) Whose experiment gives the more reliable estimate of the number of yellow
    jelly beans in the tub?
    Give a reason for your answer.

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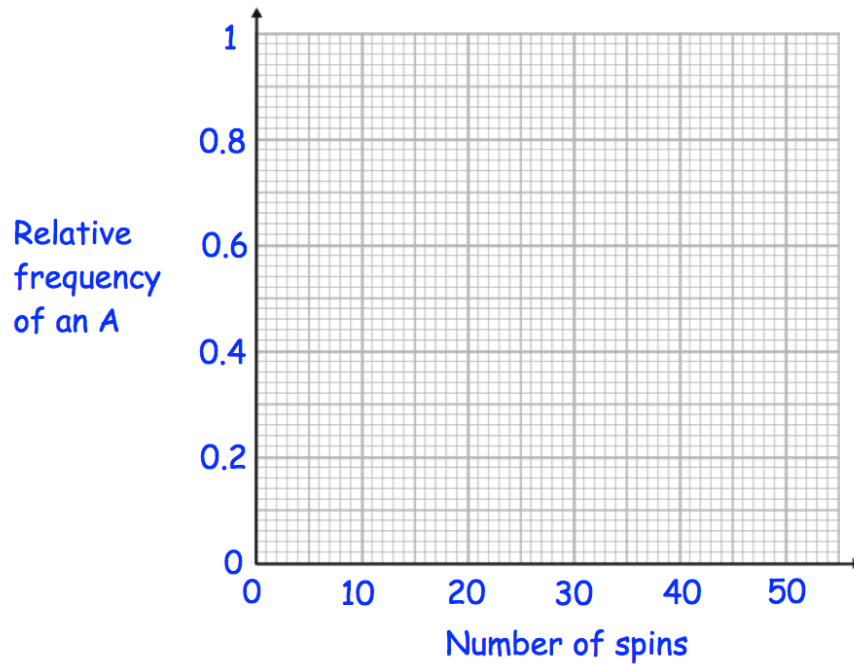**(1)**

4. A three-sided spinner is labelled A, B and C.
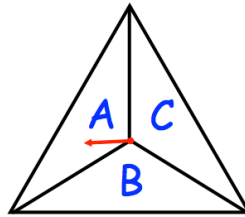
The spinner is spun and the frequency the letter A is recorded every 10 spins.
The table below shows this information.

Spins	10	20	30	40
Frequency of an A	5	12	21	26

(a) Complete plot the relative frequencies on the graph below.

(3)

(b) Neil says the relative frequency after 50 spins is 0.8
Explain why Neil must be wrong

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(2)

5. A spinner has four sections, each labelled A, B, C and D.
Susan and Helen spins the spinner a number of times.
The table shows some information.

	Number of spins	Number of B's	Relative frequency of spinning a B
Susan	20	8	
Helen	120		0.35

Complete the table.

(2)

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6. A spinner has a green section and a blue sector.
The spinner is spun 500 times.
The table shows the relative frequency of a green after different numbers of spins.

Number of spins	Relative frequency of a green
100	0.12
200	0.17
300	0.21
400	0.23
500	0.22

How many times was a green obtained after 400 spins?

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(2)

7. There are 50 sweets in a jar.
In a trial, a sweet is chosen at random and then it is replaced.
The results are recorded after every 20 trials.
The graph shows the relative frequency of a blue sweet
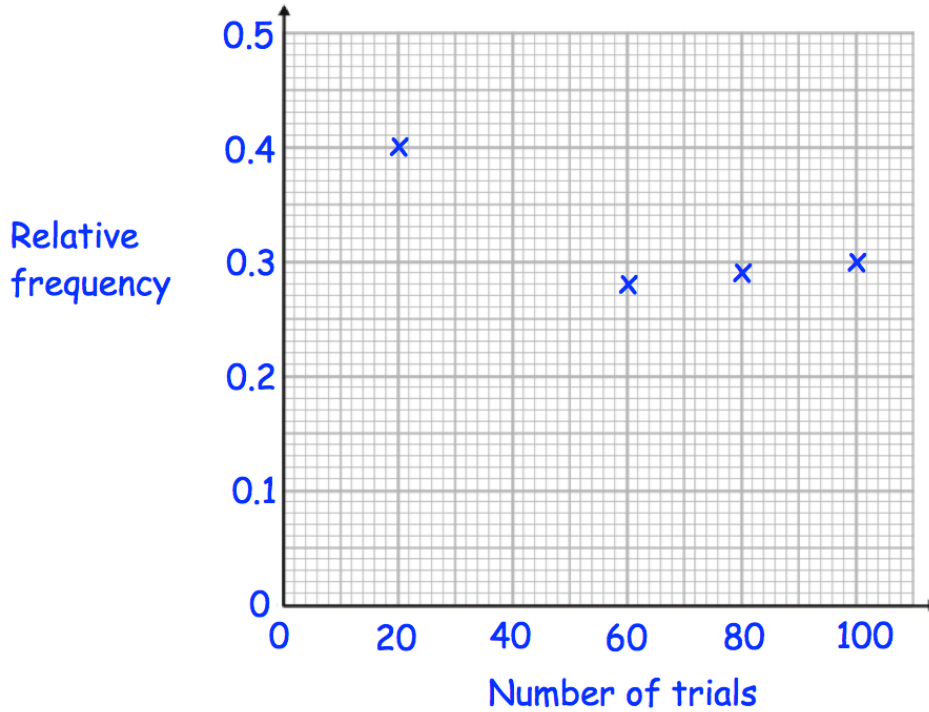
In the first forty trials, ten blue sweets were chosen.

(a) Plot this result on the graph.

(1)

(b) What is the best estimate, from the graph, of the probability of choosing a blue sweet?
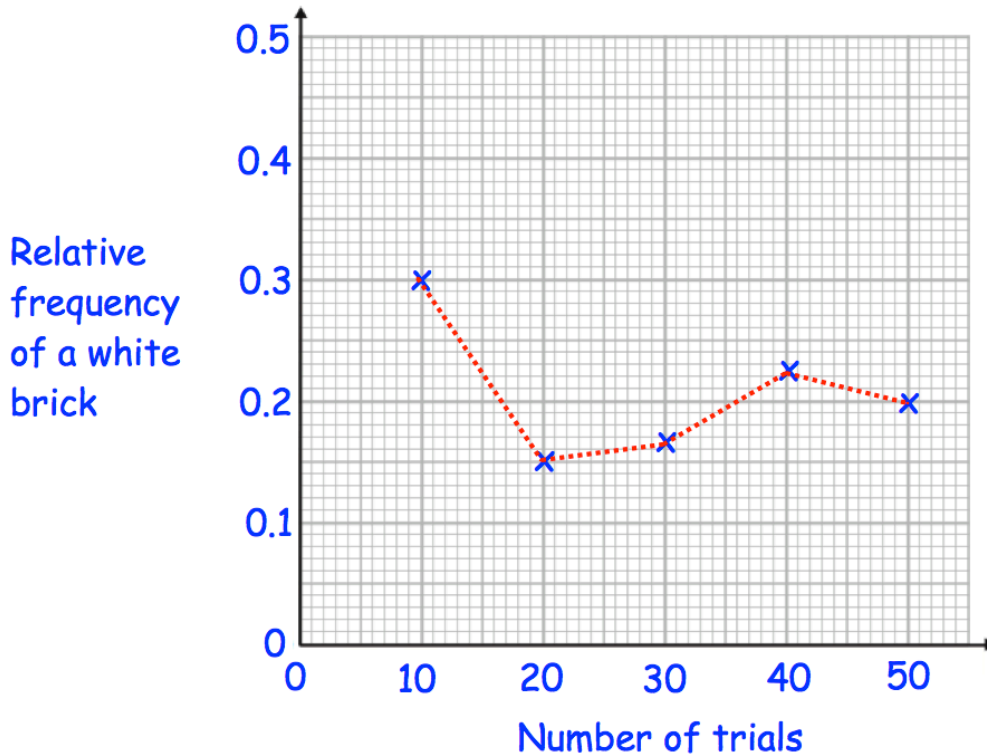Explain your answer.

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(2)

(c) Use your answer to estimate the number of blue sweets in the jar.

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(2)

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8. James has a box containing 4000 lego bricks.
He wants to know the probability of picking a white lego brick.
James picks a brick at random and replaces the bricks in the box.
He does this 50 times and calculates the relative frequency of a white after every 10 trials.

(a) Use the graph to calculate the number of times James chose a white brick in the first 10 trials.

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(2)

(b) What is the best estimate of the probability of choosing a white brick? Explain your answer.

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(2)