



THIRD SPACE
LEARNING

GCSE Exam Questions

Relative Frequency | Probability

GCSE Exam Questions: Relative Frequency

- 1) The probability that a biased dice will land on a five is 0.4.

Lewis 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)

- 2) (a) A bag contains only red, green and white counters. The table below shows the probability that a counter chosen at random from the bag will be red or green.

Colour	Red	Green	White
Probability	0.5	0.3	

Jake takes a counter from the bag.

Workout the probability that Jake takes a white counter.

(2)

- (b) The bag contains 50 counters.

Work out how many green counters there are in the bag.

(2)

(4 marks)

GCSE Exam Questions: Relative Frequency

- 3) (a) John wants to test if a coin is biased. He throws the coin 30 times.

Here are his results.

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

Complete the relative frequency table.

	Heads	Tails
Relative Frequency		

(2)

- (b) Is the coin biased?

Explain your answer.

(1)

- (c) John decides to throw the coin 150 times.

Calculate an estimate for the number of times the coin will land on heads.

(2)

(5 marks)

GCSE Exam Questions: Relative Frequency

- 4) A spinner lands on A, B, C or D.

The relative frequencies after 200 spins are shown in the table below.

	A	B	C	D
Relative Frequency	0.25	0.4	0.2	0.15

- (a) How many times did the spinner land on A?

(2)

- (b) How many times did the spinner land on C?

(2)

- (c) How many more times did the spinner land on B than D?

(3)
(7 marks)

GCSE Exam Questions: Relative Frequency Answers

	Question	Answer	Marks								
1)	The probability that a biased dice will land on a 5 is 0.4. Lewis is going to roll the dice 400 times. Work out an estimate for the number of times the dice will land on a five.	400×0.4 160	(1) (1)								
2) (a)	A bag contains only red, green and white counters. Below, the table shows the probability that a counter chosen at random from the bag will be red or green. <table border="1"> <tr> <td>Colour</td><td>Red</td><td>Green</td><td>White</td></tr> <tr> <td>Probability</td><td>0.5</td><td>0.3</td><td></td></tr> </table> Jake takes a counter from the bag. Workout the probability that Jake takes a white counter.	Colour	Red	Green	White	Probability	0.5	0.3		(a) $1 - 0.8$ 0.2	(1) (1)
Colour	Red	Green	White								
Probability	0.5	0.3									
(b)	The bag contains 50 counters. Work out how many green counters there are in the bag.	(b) 50×0.3 15	(1) (1)								

GCSE Exam Questions: Relative Frequency Answers

	Question	Answer	Marks												
3) (a)	John wants to test if a coin is biased. He throws the coin 30 times. Here are his results. 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 Complete the relative frequency table. <table><tr><td></td><td>Heads</td><td>Tails</td></tr><tr><td>Relative Frequency</td><td></td><td></td></tr></table>		Heads	Tails	Relative Frequency			(a) Heads $\frac{22}{30}$ or $\frac{11}{15}$ Tails $\frac{8}{30}$ or $\frac{4}{15}$ <table><tr><td></td><td>Heads</td><td>Tails</td></tr><tr><td>Relative Frequency</td><td>$\frac{11}{15}$</td><td>$\frac{4}{15}$</td></tr></table>		Heads	Tails	Relative Frequency	$\frac{11}{15}$	$\frac{4}{15}$	(1) (1)
		Heads	Tails												
Relative Frequency															
	Heads	Tails													
Relative Frequency	$\frac{11}{15}$	$\frac{4}{15}$													
(b)	Is the coin biased? Explain your answer.	(b) Yes, you would expect an equal probability, so the numbers should be closer.	(1)												
(c)	John decides to throw the coin 150times. Calculate an estimate for the number of times the coin will land on heads.	(c) $150 \times \frac{11}{15}$ 110	(1) (1)												
4)	A spinner lands on A, B, C or D. The relative frequencies after 200spins are shown in the table below. <table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>Relative Frequency</td><td>0.25</td><td>0.4</td><td>0.2</td><td>0.15</td></tr></table>		A	B	C	D	Relative Frequency	0.25	0.4	0.2	0.15				
	A	B	C	D											
Relative Frequency	0.25	0.4	0.2	0.15											
(a)	How many times did the spinner land on A?	(a) 0.25×200 50	(1) (1)												
(b)	How many times did the spinner land on C?	(b) 0.2×200 40	(1) (1)												
(c)	How many more times did the spinner land on B than D?	(c) $0.4 \times 200 = 80$ $0.15 \times 200 = 30$ $80 - 30 = 50$	(1) (1) (1)												

Where to go next?

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