



THIRD SPACE  
LEARNING

# GCSE Exam Questions

Experimental Probability |  
Probability

## GCSE Exam Questions: Experimental Probability

- 1) (a) Luke and Sharon want to estimate how many yellow sweets are in a jar of 500 sweets.

They each conducted an experiment. The table below shows their results.

|        | Number of Nails | Number of yellow beans chosen |
|--------|-----------------|-------------------------------|
| Luke   | 30              | 6                             |
| Sharon | 120             | 18                            |

Write down the experimental probability of Luke taking a yellow sweet.

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(2)

- (b) Write down the experimental probability of Sharon taking a yellow sweet.

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(2)

- (c) Whose experiment gives the more reliable estimate of the number of yellow sweets in the jar?

Give a reason for your answer.

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(1)  
(5 marks)

- 2) The probability that a biased dice will land on a six is 0.3.

The dice will be rolled 400 times.

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

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(2 marks)

## GCSE Exam Questions: Experimental Probability

- 3) A spinner has four sections, each labelled A, B, C and D.  
Jack and Donna spin the spinner a number of times.

The table below shows their results.

|       | Number of Spins | Number of A's | Relative frequency of Spinning and A |
|-------|-----------------|---------------|--------------------------------------|
| Luke  | 30              | 9             |                                      |
| Donna | 140             |               | 0.35                                 |

Complete the table.

**(4 marks)**

- 4) (a) A spinner can land on red, green, pink or blue.

The table below shows the probabilities that the spinner will land on red, green, pink or blue.

| Colour      | Red | Green | Pink | Blue |
|-------------|-----|-------|------|------|
| Probability | 0.4 | 0.1   | 0.2  |      |

Work out the probability the spinner will land on blue.

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**(2)**

- (b) The spinner is spun 300 times.

Estimate how many times the spinner lands on pink.

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**(2)**  
**(4 marks)**

# GCSE Exam Questions: Experimental Probability Answers

|        | Question  | Answer   | Marks              |                               |      |    |   |        |     |    |  |                    |
|--------|---|--|--------------------|-------------------------------|------|----|---|--------|-----|----|--|--------------------|
| 1) (a) | <p>Luke and Sharon want to estimate how many yellow sweets are in a jar of 500 sweets.</p> <p>They each conducted an experiment. The table below shows their results.</p> <table><tr><td></td><td>Number of Nails</td><td>Number of yellow beans chosen</td></tr><tr><td>Luke</td><td>30</td><td>6</td></tr><tr><td>Sharon</td><td>120</td><td>18</td></tr></table> <p>Write down the experimental probability of Luke taking a yellow sweet?</p> |  | Number of Nails    | Number of yellow beans chosen | Luke | 30 | 6 | Sharon | 120 | 18 | <p>(a) <math>\frac{6}{30}</math> or 0.2</p> <p>For correct numerator<br/>For correct denominator</p> | <p>(1)<br/>(1)</p> |
|        | Number of Nails   | Number of yellow beans chosen  |                    |                               |      |    |   |        |     |    |  |                    |
| Luke   | 30  | 6  |                    |                               |      |    |   |        |     |    |  |                    |
| Sharon | 120   | 18   |                    |                               |      |    |   |        |     |    |  |                    |
| (b)    | <p>Write down the experimental probability of Sharon taking a yellow sweet?</p>   | <p>(b) <math>\frac{18}{120} = 0.15</math></p> <p>For correct numerator<br/>For correct denominator</p> | <p>(1)<br/>(1)</p> |                               |      |    |   |        |     |    |  |                    |
| (c)    | <p>Whose experiment gives the more reliable estimate of the number of yellow sweets in the jar?</p> <p>Give a reason for your answer.</p>   | <p>Sharon's, because she did the experiment more times, so her data is more reliable.</p>              | <p>(1)</p>         |                               |      |    |   |        |     |    |  |                    |
| 2)     | <p>The probability that a biased dice will land on a six is 0.3.</p> <p>The dice will be rolled 400 times.</p> <p>Work out an estimate for the number of times the dice will land on a six.</p>   | <p><math>400 \times 0.3</math><br/>120</p>   | <p>(1)<br/>(1)</p> |                               |      |    |   |        |     |    |  |                    |

# GCSE Exam Questions: Experimental Probability Answers

|             | Question  | Answer                       | Marks                                |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
|-------------|---|------------------------------|--------------------------------------|---------------|--------------------------------------|------|-------------|-----|-----|-------|-----|------------------------------------|------------|--|--|-----------------|---------------|--------------------------------------|------|----|---|-----|-------|-----|----|------|--------------------------|
| 3)          | <p>A spinner has four sections, each labelled A, B, C and D.</p> <p>Jack and Donna spin the spinner a number of times.</p> <p>The table below shows their results.</p> <table><tr><td></td><td>Number of Spins</td><td>Number of A's</td><td>Relative frequency of Spinning and A</td></tr><tr><td>Luke</td><td>30</td><td>9</td><td></td></tr><tr><td>Donna</td><td>140</td><td></td><td>0.35</td></tr></table> <p>Complete the table.</p> |                              | Number of Spins                      | Number of A's | Relative frequency of Spinning and A | Luke | 30          | 9   |     | Donna | 140 |                                    | 0.35       | $140 \times 0.35$ $= 49$ $\frac{9}{30}$ $0.3$ <table><tr><td></td><td>Number of Spins</td><td>Number of A's</td><td>Relative frequency of Spinning and A</td></tr><tr><td>Luke</td><td>30</td><td>9</td><td>0.3</td></tr><tr><td>Donna</td><td>140</td><td>49</td><td>0.35</td></tr></table> |  | Number of Spins | Number of A's | Relative frequency of Spinning and A | Luke | 30 | 9 | 0.3 | Donna | 140 | 49 | 0.35 | (1)<br>(1)<br>(1)<br>(1) |
|             | Number of Spins   | Number of A's                | Relative frequency of Spinning and A |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| Luke        | 30  | 9                            |                                      |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| Donna       | 140   |                              | 0.35                                 |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
|             | Number of Spins   | Number of A's                | Relative frequency of Spinning and A |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| Luke        | 30  | 9                            | 0.3                                  |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| Donna       | 140   | 49                           | 0.35                                 |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| 4) (a)      | <p>A spinner can land on red, green, pink or blue.</p> <p>The table below shows the probabilities that the spinner will land on red, green, pink or blue.</p> <table><tr><td>Colour</td><td>Red</td><td>Green</td><td>Pink</td><td>Blue</td></tr><tr><td>Probability</td><td>0.4</td><td>0.1</td><td>0.2</td><td></td></tr></table> <p>Work out the probability the spinner will land on blue.</p>  | Colour                       | Red                                  | Green         | Pink                                 | Blue | Probability | 0.4 | 0.1 | 0.2   |     | (a) $1 - 0.4 - 0.1 - 0.2$<br>$0.3$ | (1)<br>(1) |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| Colour      | Red   | Green                        | Pink                                 | Blue          |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| Probability | 0.4   | 0.1                          | 0.2                                  |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |
| (b)         | <p>The spinner is spun 300 times. Estimate how many times the spinner lands on pink.</p>  | (b) $300 \times 0.2$<br>$60$ | (1)<br>(1)                           |               |                                      |      |             |     |     |       |     |                                    |            |  |  |                 |               |                                      |      |    |   |     |       |     |    |      |                          |

# Where to go next?

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