GCSE HIGHER · REVISION MAT 4

Sample size and reliability

1 A spinner lands on A 26 times in 65 spins.

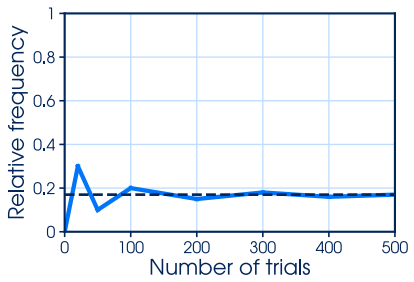
Find the relative frequency of A.

2 Which value is the best estimate?

Trials	10	50	100	500
Relative frequency	0.4	0.3	0.21	0.2

3 Explain why a relative frequency of 0 after 3 trials does not mean the event is impossible.

4 The graph shows the relative frequency of a dice landing on 1.



Is the dice likely to be fair for 1s? Explain.

5 Show that 45 heads in 100 flips gives a relative frequency of 0.45.

6 Test 1: 12 faulty in 200.

Test 2: 33 faulty in 800.

Combine to estimate P(faulty).

7 Explain how you would decide whether a spinner is biased.

8 A relative frequency of red is 0.25 after 80 spins.

After 20 more spins it is 0.3.

How many reds were in the last 20 spins?

Mr&Mrs MATHS

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Sample size and reliability

1 0.4

2 0.2 (from 500 trials)

3 3 trials is too few; it may just not have happened yet.

4 Settles near 0.17

Yes: $\frac{1}{6} \approx 0.17$

5 $\frac{45}{100} = 0.45$

6 $\frac{45}{1000}$

0.045

7 Spin it many times; compare the relative frequencies with the expected probabilities.

8 80 spins: 20 reds

100 spins: 30 reds

10