GCSE HIGHER · REVISION MAT 2

Sample size and reliability

1 A pin lands point up 12 times in 40 throws.

Find the relative frequency.

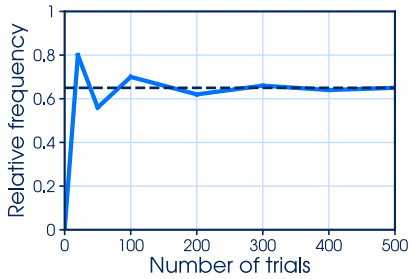
2 Which value is the best estimate of the probability?

Trials	10	50	100	500
Relative frequency	0.5	0.42	0.36	0.33

3 Sam does 10 trials and Jo does 1000.

Explain whose estimate is likely to be better.

4 The graph shows the relative frequency of a biased coin landing heads.



Estimate P(head) and the number of heads in 600 flips.

5 Show that a relative frequency of 0.48 after 500 flips is consistent with a fair coin.

6 Group A: 18 successes in 60 trials.

Group B: 95 successes in 400 trials.

Combine the results to estimate the probability.

7 Explain why repeating an experiment can give a different relative frequency.

8 After 200 spins, red has a relative frequency of 0.35.

After another 300 spins, it is 0.3 overall.

How many reds were in the second 300 spins?

Mr&Mrs MATHS

ANSWERS · REVISION MAT 2

Sample size and reliability

1 0.3

2 0.33 (from 500 trials)

3 Jo's: more trials give a more reliable estimate.

4 About 0.65; about 390

5 0.48 is close to 0.5, and some variation is expected.

6 $\frac{18 + 95}{460} = \frac{113}{460}$

≈ 0.246

7 Each trial is random, so results vary between experiments.

8 First 200: 70 reds

500 spins: 150 reds

80

Mr&Mrs MATHS