GCSE HIGHER · REVISION MAT 5

Relative frequency and expected outcomes

1 P(green) = $\frac{1}{5}$.

There are 250 trials.

How many greens would you expect?

2 A player scores 27 baskets from 45 shots.

Find the relative frequency of scoring.

3 Explain the difference between an expected outcome and an actual outcome.

4 A machine makes 4000 bolts a day.

In a sample, 6 of 300 bolts were faulty.

How many faulty bolts would you expect each day?

5 A spinner was spun 100 times.

Score	1	2	3	4
Frequency	28	22	24	26

Show that the relative frequency of 3 is 0.24.

6 A spinner was spun 100 times.

Score	1	2	3	4
Frequency	28	22	24	26

Do the results suggest the spinner is fair? Explain.

7 Explain why more trials make a relative frequency more reliable.

8 For a biased dice, the relative frequency of a 6 is 0.3.

The dice is rolled twice.

Estimate P(two sixes) and the number of double sixes in 200 pairs of rolls.

Mr&Mrs MATHS

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Relative frequency and expected outcomes

1 50

2 $\frac{27}{45}$

0.6

3 Expected is the average predicted by probability; actual is what happens, which varies.

4 $\frac{6}{300} = 0.02$

80

5 $\frac{24}{100} = 0.24$

6 Expected 25 each

Yes: the results are all close to 25.

7 Random variation evens out over a larger number of trials.

8 $0.3^2 = 0.09$

0.09; about 18

Mr&Mrs MATHS