GCSE FOUNDATION · REVISION MAT 3

Relative frequency and fairness

1 A dice is rolled 60 times.

Score	1	2	3	4	5	6
Frequency	12	9	11	10	8	10

Work out the relative frequency of rolling a 1.

2 A fair dice is rolled 240 times.

How many times would you expect to get a 2?

3 A dice is rolled 60 times.

Score	1	2	3	4	5	6
Frequency	12	9	11	10	8	10

Is the dice fair? Explain your answer.

4 A coin is flipped 200 times.
It lands on heads 116 times.

Show that the relative frequency of heads is 0.58.

5 Ali spins a spinner 50 times and gets red 21 times.
Bea spins the same spinner 500 times and gets red 190 times.

(a) Whose results give the better estimate of P(red)? Why?

(b) Use all the results to estimate P(red).

6 A bag has 30 counters, some red and some blue.
Zara takes a counter, records its colour and puts it back. She does this 150 times.

She gets red 60 times.

Estimate how many red counters are in the bag.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 3

Relative frequency and fairness

1 $\frac{12}{60} = \frac{1}{5} \approx 0.20$

2 $\frac{1}{6} \times 240 = \mathbf{40}$

3 Expected about 10 of each. The results are close to this, so it **seems fair**.

4 $116 \div 200 = \mathbf{0.58}$ ✓

5 (a) **Bea's**: she did more trials.

(b) $(21 + 190) \div (50 + 500) = \frac{211}{550} \approx 0.38$

6 Relative frequency of red = $60 \div 150 = 0.4$

$0.4 \times 30 \approx \mathbf{12}$

Mr&Mrs MATHS