GCSE FOUNDATION · REVISION MAT 5

Relative frequency and fairness

1 A dice is rolled 100 times.

Score	1	2	3	4	5	6
Frequency	15	14	30	16	13	12

Work out the relative frequency of rolling a 3.

2 A fair dice is rolled 90 times.

How many times would you expect to get a 1?

3 A dice is rolled 100 times.

Score	1	2	3	4	5	6
Frequency	15	14	30	16	13	12

Is the dice fair? Explain your answer.

4 A coin is flipped 150 times.
It lands on heads 81 times.

Show that the relative frequency of heads is 0.54.

5 Ali spins a spinner 25 times and gets red 9 times.
Bea spins the same spinner 250 times and gets red 80 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 60 counters, some red and some blue.
Zara takes a counter, records its colour and puts it back. She does this 300 times.

She gets red 125 times.

Estimate how many red counters are in the bag.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 5

Relative frequency and fairness

1 $\frac{30}{100} = \frac{3}{10} \approx 0.30$

2 $\frac{1}{6} \times 90 = \mathbf{15}$

3 Expected about 17 of each.
Probably biased: one score comes up much more often than the others.

4 $81 \div 150 = \mathbf{0.54}$ ✓

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

(b) $(9 + 80) \div (25 + 250) = \frac{89}{275} \approx 0.32$

6 Relative frequency of red $= 125 \div 300 = 0.416667$

$0.416667 \times 60 \approx \mathbf{25}$

Mr&Mrs MATHS