GCSE HIGHER · REVISION MAT 1

Fairness and expected outcomes

1 On a fair dice, which is more likely: a 6 or a 1?

2 A fair spinner has 5 equal sections numbered 1 to 5.

Find P(odd).

3 Explain how you could test whether a coin is fair.

4 A game costs 20p.

You roll a dice and win 50p for a 6.

Is the game fair? Explain.

5 A spinner has three equal sections: red, red, blue.

Show that it is not fair between the two colours.

6 A fair coin lands heads 9 times in a row.

Find P(head on the 10th flip).

7 Explain what choosing 'at random' means.

8 A game costs £1.

Two dice are rolled and a double six wins £x.

Find x so that the game is fair.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 1

Fairness and expected outcomes

1 They are equally likely ($\frac{1}{6}$ each).

2 $\frac{3}{5}$

3 Flip it many times; a fair coin should give heads close to half the time.

4 Expected win $\frac{50}{6} = 8.3$p

Not fair: you lose about 11.7p per game on average.

5 P(red) = $\frac{2}{3}$, P(blue) = $\frac{1}{3}$

6 $\frac{1}{2}$: the coin has no memory.

7 Every item has the same chance of being chosen.

8 $\frac{1}{36}x = 1$

£36

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