Theoretical probability

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. A fair die is rolled. Find the probability of a 5. [2 marks]

One face is labelled 5.

There are six equally likely faces.

Answer: $\frac{1}{6}$.

2. A fair die is rolled. Find the probability of an odd number. [2 marks]

The odd results are 1, 3 and 5.

Three of the six results are favourable.

Answer: $\frac{3}{6} = \frac{1}{2}$.

3. A card is selected at random from cards numbered 1 to 10. Find the probability of a factor of 10. [2 marks]

The factors in the set are 1, 2, 5 and 10.

Four of ten cards are favourable.

Answer: $\frac{4}{10} = \frac{2}{5}$.

4. A counter is chosen at random from a bag with 7 white and 3 black equal-size counters. Give the chance of black as a fraction, decimal and percentage. [2 marks]

There are ten counters altogether.

Three favourable counters give $\frac{3}{10}$.

Answer: $\frac{3}{10} = 0.3 = 30\%$.

5. A fair die is rolled. Find the chance of a number less than 1 and the chance of a number at most 6. [2 marks]

No possible face is less than 1.

All six possible faces are at most 6.

Answer: Less than 1: 0. At most 6: 1.

6. Which is greater: the chance of blue when a counter is chosen at random from 3 blue and 5 red equal-size counters, or an even result on a fair die? [3 marks]

Blue chance is $\frac{3}{8}$.

The even chance is $\frac{1}{2} = \frac{4}{8}$.

$\frac{4}{8} > \frac{3}{8}$.

Answer: An even result on the die.