Probability

GCSE Maths · Foundation and Higher tier · Grades 4–6 · About 25 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTISE

- Calculate the probability of a single event and of an event not happening
- Use probability to find an expected number of outcomes
- Calculate probabilities of combined events with and without replacement

WORKED EXAMPLE

A bag contains 3 red and 7 blue counters. A counter is taken, replaced, and a second counter is taken. Find the probability of getting one of each colour.

1. P(red) = 0.3 and P(blue) = 0.7 on every pick, because the counter is replaced.
2. Red then blue: 0.3 × 0.7 = 0.21.
3. Blue then red: 0.7 × 0.3 = 0.21.
4. Add the two ways: 0.21 + 0.21 = 0.42.

Answer: 0.42

Questions

Show your working in the space under each question.

1. A bag contains 3 red, 5 blue and 2 green counters. One counter is taken at random. Find the probability that it is blue.

2. The probability that it rains tomorrow is 0.35. Find the probability that it does not rain.

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3. A fair six-sided dice is rolled. Find the probability of a number greater than 4.

4. The probability that a spinner lands on red is 0.2. The spinner is spun 150 times. How many times would you expect it to land on red?

5. A fair coin is flipped twice. Find the probability of two heads.

6. Two fair six-sided dice are rolled. Find the probability that the total is 7.

7. A bag contains 4 red and 6 blue counters. A counter is taken, replaced, and a second counter is taken. Find the probability that both are red.

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8. A bag contains 4 red and 6 blue counters. Two counters are taken without replacement. Find the probability that both are blue.

Answers: Probability

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	A bag contains 3 red, 5 blue and 2 green counters. One counter is taken at random. Find the probability that it is blue.	**5/10 = 1/2**
2	The probability that it rains tomorrow is 0.35. Find the probability that it does not rain.	**0.65**
3	A fair six-sided dice is rolled. Find the probability of a number greater than 4.	**2/6 = 1/3**
4	The probability that a spinner lands on red is 0.2. The spinner is spun 150 times. How many times would you expect it to land on red?	**30**
5	A fair coin is flipped twice. Find the probability of two heads.	**1/4**
6	Two fair six-sided dice are rolled. Find the probability that the total is 7.	**6/36 = 1/6**
7	A bag contains 4 red and 6 blue counters. A counter is taken, replaced, and a second counter is taken. Find the probability that both are red.	**4/25 (or 0.16)**
8	A bag contains 4 red and 6 blue counters. Two counters are taken without replacement. Find the probability that both are blue.	**30/90 = 1/3**

TUTOR TIP

Multiply along the branches and add between them. Without replacement, both the numerator and the denominator change for the second pick.

Stuck on a question? Work through it live with a tutor.

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