# Probability

High School Math · Grades 8–10 · About 25 minutes · 8 questions

Name _____ Date _____ Score / 8

**WHAT YOU WILL PRACTICE**

- 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 color.

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 work 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 die 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 die 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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