



Quick Review

When the outcomes of an experiment are equally likely, the probability of an event occurring is:

$$\frac{\text{Number of outcomes favourable to that event}}{\text{Total number of outcomes}}$$

George has 15 bottles of flavoured water in the fridge. He has 7 bottles of lemon, 3 bottles of orange, and 5 bottles of raspberry.

George takes a bottle without looking.

The probability that George takes a particular flavour of water can be expressed as a fraction, ratio, or percent.

The number of possible outcomes is 15.

- For the probability that George takes orange:
The number of favourable outcomes is 3.
As a fraction, the probability is: $\frac{3}{15} = \frac{1}{5}$
As a ratio, the probability is: 1:5
As a percent, the probability is: $\frac{3}{15} = \frac{1}{5} = \frac{20}{100} = 20\%$
- The probability that George takes a lime-flavoured water is 0, or 0% because there is no lime-flavoured water in the fridge.
This is an impossible event.
- The probability that George takes a bottle that contains water is 1, or 100% because every bottle contains water.
This is a certain event.
- All possible probabilities lie between 0 and 1.

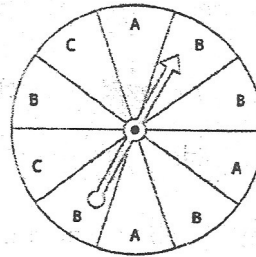
Tip

"Probability" is another name for "theoretical probability."

Practice

1. Suppose the pointer on this spinner is spun.

a) What is the total number of sectors on which the pointer could land? _____



b) Use a fraction, a ratio, and a percent to describe the probability of each event.

i) The pointer will land on A.

As a fraction: $\frac{\quad}{10}$ As a ratio: _____ : 10 As a percent: _____

ii) The pointer will land on B:

As a fraction: _____ As a ratio: _____ As a percent: _____

iii) The pointer will land on a number.

As a fraction: _____ As a ratio: _____ As a percent: _____

iv) The pointer will land on a letter.

As a fraction: _____ As a ratio: _____ As a percent: _____

v) The pointer will *not* land on C.

As a fraction: _____ As a ratio: _____ As a percent: _____

2. Gordon has some gumballs in a bag.

He has 7 red, 5 green, 2 yellow, 4 orange, 1 black, and 6 purple gum balls.

Gordon reaches into the bag without looking and pulls out a gumball.

a) What is the total number of possible outcomes? _____

b) Write a fraction, a ratio, and a percent to describe the probability of Gordon picking each gumball listed below.

	Fraction	Ratio	Percent
purple			
black			
pink			
red or yellow			

3. Find the probability of each event.

Write each answer in any form you like.

- a) Thursday immediately follows Friday. _____
- b) Roll a 1, 3, or 6 on a number cube labelled 1 to 6. _____
- c) Without looking, Julia picks a green ball from a bowl of balls with 7 red, 5 yellow, and 4 green balls. _____

4. A charity sells 1000 tickets in a draw to win a new bicycle.

Find each probability.

Write each answer as a percent.

- a) Lee buys 50 tickets.
The probability that Lee will win is: _____
- b) Jasmine buys 20 tickets.
The probability that Jasmine will win is: _____

5. This table shows the hair colour of 30 people.

A person is picked at random.

Find each probability.

Write each answer as a fraction.

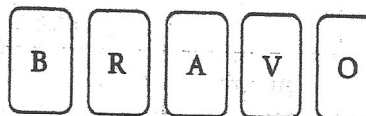
Hair Colour	Frequency
Brown	12
Blond	11
Red	5
Black	2

- a) The person has black hair. _____
- b) The person has brown hair. _____
- c) The person does not have red hair. _____
- d) The person has blond or brown hair. _____

6. Each letter in the word BRAVO is written on a separate card.

Sarah shuffles the cards and picks one without looking.

Find the probability of each outcome, as a fraction.



- a) choosing "O": _____
- b) choosing a vowel: _____
- c) choosing a consonant: _____
- d) choosing "Z": _____