

Learn About

Determining Probability and Averages: Probability

Probability is the chance that a certain event will occur. The probability of an event occurring is found by comparing the number of favourable outcomes to the total number of outcomes. Probability can be represented as a fraction or as a percentage.

The chart shows the number of each colour of pieces of confetti in a bag. To find the probability of picking a yellow piece of confetti, first find the total number of pieces of confetti. Then divide the number of yellow pieces of confetti by the total number of pieces of confetti. You can write the probability as a fraction or as a percentage.

Confetti

Colour	Number
Red	150
Blue	180
Yellow	120
Green	50
White	80

Fraction:

Total number of pieces of confetti: 580

Number of yellow pieces of confetti: 120

Probability: $\frac{120}{580} = \frac{6}{29}$

Percentage:

$\frac{6}{29} = 6 \div 29 \approx 0.207$

$0.207 \times 100 = 20.7\%$

Tamsin writes each letter of WOOLLOOMOOLOO on a card and places the cards face down on the table. What is the probability of Tamsin selecting a card with an L on it? Write the probability as a fraction and a percentage, rounded to the nearest per cent.

There are 3 cards with an L written on them and 13 cards in all.

$\frac{3}{13} = 3 \div 13 \approx 0.23$ and $0.23 = 23\%$

The probability of picking a card with an l on it is $\frac{3}{13}$ or **23%**.



Probability is the chance that a certain event will occur. The probability of an event occurring is found by comparing the total number of favourable outcomes to the total number of outcomes.

*Look at the answer choices for each question.
Read why each answer choice is correct or
not correct.*

1. How many combinations of sock colour, shirt colour and pants colour does Bailey have to choose from?

(A) 44 combinations

This is not correct. There are 3 different colours of socks, 4 different colours of shirts and 3 different colours of pants. $3 \times 4 \times 3 = 36$, not 44.

● 36 combinations

This is correct. There are 3 different colours of socks, 4 different colours of shirts and 3 different colours of pants. $3 \times 4 \times 3 = 36$.

(C) 10 combinations

This is not correct. There are 3 different colours of socks, 4 different colours of shirts and 3 different colours of pants. Multiply $3 \times 4 \times 3 = 36$. Do not add $3 + 4 + 3 = 10$.

(D) 3 combinations

This is not correct. There are 3 different colours of socks, 4 different colours of shirts and 3 different colours of pants. Multiply $3 \times 4 \times 3 = 36$.

2. If Bailey takes a pair of socks without looking, what is the probability that he will choose a pair of black socks?

● $\frac{10}{23}$

This is correct. There are 23 pairs of socks in all, 10 of which are black. The probability is $\frac{10}{23}$.

(B) $\frac{1}{3}$

This is not correct. There are 23 pairs of socks in all, 10 of which are black. The probability is $\frac{10}{23}$, not $\frac{1}{3}$.

(C) $\frac{3}{10}$

This is not correct. There are 23 pairs of socks in all, 10 of which are black. The probability is $\frac{10}{23}$, not $\frac{3}{10}$.

(D) $\frac{2}{11}$

This is not correct. There are 23 pairs of socks in all, 10 of which are black. The probability is $\frac{10}{23}$, not $\frac{2}{11}$.

Lesson

3

*Read the passage.
Then do Numbers 1–5.*

The Dress Code

Alexander's school has a dress code. Students may wear navy, khaki or black pants. Collared shirts are required. The shirts must be yellow, white or light blue. Socks must be a solid colour: white, tan, blue, black or brown. Jumpers worn over the collared shirts may be grey or navy. The students at Alexander's school like the uniform because it makes getting dressed easy – everything matches!



1. A student can wear one shirt and one jumper. How many colour combinations are possible?

- Ⓐ 2 combinations
- Ⓑ 3 combinations
- Ⓒ 5 combinations
- Ⓓ 6 combinations

2. Alexander needs to choose one pair of socks and one pair of pants for school on Tuesday. How many colour combinations are possible?

- Ⓐ 15 combinations
- Ⓑ 8 combinations
- Ⓒ 5 combinations
- Ⓓ 3 combinations

Lesson 15

*Read the passage.
Then do Numbers 1–5.*

Mission: Space

The United States and Russia were the first countries to begin to launch rockets and space shuttles. As of 2005, there had been 5165 successful launches. Many of the most recent space vehicle launches have been used to take people and supplies to the International Space Station.

Russia	3211
United States	1466
Japan	74
China	74
Others	340
Total	5165



1. Between the years 1959 and 2005, the United States successfully launched 1466 spacecraft. What was the average number of successful launches by the United States per year during these 46 years? Round to the nearest whole number.

- Ⓐ 24 launches
- Ⓑ 27 launches
- Ⓒ 32 launches
- Ⓓ 38 launches

2. What is the approximate average number of successful launches per year for the first 46 years of space flight?

- Ⓐ 74 launches
- Ⓑ 105 launches
- Ⓒ 112 launches
- Ⓓ 802 launches

Self-Assessment 2

Lessons 6–10

Answer these questions after you have completed Lessons 6–10. Before you begin, re-read what you wrote in Self-Assessment 1.

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Name _____ Date _____

1. Rate your work in Lessons 6–10. Circle your answer.

successful

somewhat successful

needs improvement

2. Did any of the questions give you trouble? _____

If so, what kind of trouble did you have?

Is this the same kind of trouble you had in Lessons 1–5? _____

3. Did you find the questions easier or more difficult than those in Lessons 1–5?

Why do you think this is so?

4. Did you meet the goal you set for yourself for Lessons 6–10? _____

Why or why not?

5. What is your goal for Lessons 11–15?

Cut along the dotted line.