

"Compound Probability"

- I. compound probability - probability of 2 or more events
- A. independent - when the outcome of one event *does not affect* the outcome of the other event(s)
- B. dependent - when the outcome of one event *does affect* the outcome of the other event(s)

If a number cube is rolled twice, what is the probability that an even number will show up both times?

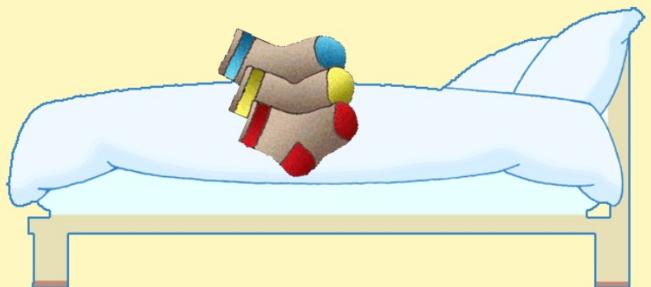
Independent $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$



A drawer contains 6 blue socks, 20 red socks, and 14 yellow socks.

What is the probability that **Kaitlin** will randomly choose a red sock followed by another red sock?

What is the probability that she will choose a blue sock followed by a yellow sock?



dependent

Determine if the events are dependent or independent.

1. getting tails on a coin toss and rolling a 6 on a number cube

2. getting 2 red gumballs out of a gumball machine

independent
dependent

There are 4 yellow counters and 3 red counters in a cup. If you pick a counter, replace it and pick another, what is the probability of picking:

independent

a red followed by a yellow $\frac{3}{7} \cdot \frac{4}{7} = \frac{12}{49}$

two reds $\frac{3}{7} \cdot \frac{3}{7} = \frac{9}{49}$


two yellows

a yellow followed by a red



Two boxes each contain 4 marbles: red, blue, green, and black. One marble is chosen from each box.

What is the probability of choosing a blue marble from each box?

$$\frac{1}{4} \cdot \frac{1}{4} = \frac{1}{16}$$
Two hand-drawn cubes, one to the left and one to the right, representing the two boxes mentioned in the text. Each cube is drawn with simple lines to show its three-dimensional form.

Three separate boxes each have one blue marble and one green marble. One marble is chosen from each box. is the probability of choosing a blue marble from each box?

$$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$$

You have one box with one blue marble and one green marble and another box with one yellow marble and two blue marbles.

One marble is chosen from each box.

is the probability of choosing a green marble, then a blue marble?

$$\frac{1}{2} \cdot \frac{2}{3} = \frac{2}{6}$$

The letters in the phrase *I Love Math* are placed in a box.

If one letter is chosen, then replaced, and another letter is chosen, what is the probability that they will both be consonants?

$$\frac{5}{9} \cdot \frac{5}{9} = \frac{25}{81}$$

Determine if each event is dependent or independent.

1. drawing a red ball from a bucket and then drawing a green ball without replacing the first

dep.

2. spinning a 7 on a spinner three times in a row

ind

3. A bucket contains 5 yellow and 7 red balls. If 2 balls are selected randomly without replacement, what is the probability that they will both be yellow?

dep