

Independent and Dependent Events ... Set 1

Independent and Dependent Events

The two spinners at the right are spun. Find each probability.

1. $P(4 \text{ and } C)$

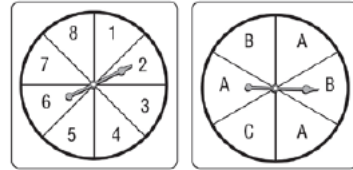
2. $P(1 \text{ and } A)$

3. $P(\text{even and } C)$

4. $P(\text{odd and } A)$

5. $P(\text{greater than } 3 \text{ and } B)$

6. $P(\text{less than } 5 \text{ and } B)$



GAMES There are 10 yellow, 6 green, 9 orange, and 5 red cards in a stack of cards turned facedown. Once a card is selected, it is *not* replaced. Find each probability.

7. $P(\text{two yellow cards})$

8. $P(\text{two green cards})$

9. $P(\text{a yellow card and then a green card})$

10. $P(\text{a red card and then an orange card})$

11. $P(\text{two cards that are not orange})$

12. $P(\text{two cards that are neither red nor green})$

13. **OFFICE SUPPLIES** A store sells a box of highlighters that contains 4 yellow, 3 blue, 2 pink, and 1 green highlighter. What is the probability of randomly picking first 1 blue and then 1 pink highlighter from the box?

14. **BASKETBALL** Angelina makes 70% of her free throws. What is the probability that she will make her next two free throws?

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Independent and Dependent Events

The probability of two independent events can be found by multiplying the probability of the first event by the probability of the second event.

Example 1

Two number cubes, one red and one blue, are rolled. What is the probability that the outcome of the red number cube is even and the outcome of the blue number cube is a 5?

$$P(\text{red number cube is even}) = \frac{1}{2}$$

$$P(\text{blue number cube is a 5}) = \frac{1}{6}$$

$$P(\text{red number cube is even and blue number cube is a 5}) = \frac{1}{2} \bullet \frac{1}{6} \text{ or } \frac{1}{12}$$

The probability that the two events will occur is $\frac{1}{12}$.

If two events, A and B , are dependent, then the probability of both events occurring is the product of the probability of A and the probability of B after A occurs.

Example 2

There are 6 black socks and 4 white socks in a drawer. If one sock is taken out without looking and then a second is taken out, what is the probability that they both will be black?

$$P(\text{first sock is black}) = \frac{6}{10} \text{ or } \frac{3}{5}$$

6 is the number of black socks; 10 is the total number of socks.

$$P(\text{second sock is black}) = \frac{5}{9}$$

5 is the number of black socks after one black sock is removed; 9 is the total number of socks after one black sock is removed.

$$P(\text{two black socks}) = \frac{3}{5} \bullet \frac{5}{9} \text{ or } \frac{1}{3}$$

The probability of choosing two black socks is $\frac{1}{3}$.