1. A jar contains 3 red marbles and 2 black marbles. All the marbles are the same size and there are no other marbles in the jar. On the first selection, a marble is chosen at random and not replaced. Then a second marble is chosen at random.

What is the probability that the marbles chosen at random will first be a black marble and then a red marble?

\[
\frac{3}{10}
\]

2. What is the probability of flipping 4 fair coins 1 time and getting all tails?

\[
\frac{1}{16}
\]

3. What is the probability of flipping 6 fair coins 1 time and getting all heads?

\[
\frac{1}{64}
\]

4. A bag contains a total of four chips. The chips are numbered 1 through 4 and are all the same size and texture. A chip is selected at random, its number is recorded, and it is put back into the bag. Then a second chip is selected at random.

What is the probability that the first chip selected was numbered 1 and the second chip selected was numbered 2?

\[
\frac{1}{16}
\]

5. A bag contains only 2 green boxes, 2 red boxes, and 3 blue boxes. All of the boxes are the same size and texture. One box is taken from the bag at random and replaced. A second box is taken out at random.

What is the probability that the first box is green and the second is blue?

\[
\frac{6}{49}
\]

6. A spinner is divided into four equal sections red, blue, yellow, and green.

What is the probability of the arrow on the spinner landing on the space marked blue on the first spin, then landing on a space not marked blue on the second spin?

\[
\frac{3}{16}
\]
### Probability of Compound Events

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>7. The spinners shown below are each divided into 5 equal sections. Each spinner is spun one time.</td>
<td>8. The spinners shown below are divided into 6 equal sections. Each spinner is spun one time.</td>
<td></td>
</tr>
<tr>
<td>What is the probability that the arrow on the first spinner will land on a space with an odd number, and the arrow on the second spinner will land on a space marked blue?</td>
<td>What is the probability that the arrow on the first spinner will land on a space with either the letter R or the letter S, and the arrow on the second spinner will land on a space with an even number?</td>
<td></td>
</tr>
<tr>
<td>( \frac{3}{25} )</td>
<td>( \frac{1}{6} )</td>
<td></td>
</tr>
<tr>
<td>9. Five different colored pencils all the same size are placed into a box. The pencils colors are red, green, blue, yellow, and black. Three pencils will be randomly selected one at a time. The pencils are not replaced after each selection.</td>
<td>10. A red and a blue number cube are rolled. The number cubes are numbered from 1 to 6. Find the probability that an odd number is rolled on the red cube and a number greater than 1 is rolled on the blue cube.</td>
<td></td>
</tr>
<tr>
<td>What is the probability that the first pencil selected is red, and the second pencil selected is yellow?</td>
<td>What is the probability that an odd number is rolled on the red cube and a number greater than 1 is rolled on the blue cube?</td>
<td></td>
</tr>
<tr>
<td>( \frac{1}{20} )</td>
<td>( \frac{5}{12} )</td>
<td></td>
</tr>
<tr>
<td>11. Find the probability of heads on three consecutive tosses of a coin.</td>
<td>12. A cooler is filled with 12 colas and 9 diet colas. If Victor randomly chooses two without replacing the first, what is the probability that he will choose a cola and then a diet cola?</td>
<td></td>
</tr>
<tr>
<td>( \frac{1}{8} )</td>
<td>( \frac{9}{35} )</td>
<td></td>
</tr>
</tbody>
</table>
13. A coin is tossed, and a number cube numbered from 1 to 6 is rolled. What is the probability of tossing heads and rolling a 3 or a 5?

\[
\frac{1}{6}
\]

14. A bag contains 5 red apples and 3 yellow apples. What is probability of picking 2 red apples without the first being replaced?

\[
\frac{5}{14}
\]

15. A box contains 2 oatmeal, 3 strawberry, and 6 cinnamon snack bars. Ruby reaches in the box and randomly takes two snack bars, one after the other. What is the probability that she will choose a cinnamon bar and then a strawberry bar.

\[
\frac{9}{55}
\]

16. There are 6 orange marbles, 2 red marbles, 3 white marbles, and 4 green marbles in a bag. Once a marble is drawn, it is replaced. What is the probability of drawing a red marble then a white marble?

\[
\frac{2}{75}
\]

17. There are 6 orange marbles, 2 red marbles, 3 white marbles, and 4 green marbles in a bag. Once a marble is drawn, it is replaced. What is the probability of drawing a white marble then a green marble?

\[
\frac{4}{75}
\]

18. There are 6 orange marbles, 2 red marbles, 3 white marbles, and 4 green marbles in a bag. Once a marble is drawn, it is replaced. What is the probability of drawing two orange marbles in a row?

\[
\frac{4}{25}
\]
<table>
<thead>
<tr>
<th>Question</th>
<th>Probability of Compound Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.</td>
<td>There are 6 orange marbles, 2 red marbles, 3 white marbles, and 4 green marbles in a bag. Once a marble is drawn, it is replaced. What is the probability of drawing two marbles in a row that are \textit{not} white?</td>
</tr>
<tr>
<td>20.</td>
<td>There are 6 orange marbles, 2 red marbles, 3 white marbles, and 4 green marbles in a bag. Once a marble is drawn, it is replaced. What is the probability of drawing a green marble then a \textit{not} green marble?</td>
</tr>
<tr>
<td>21.</td>
<td>There are 6 orange marbles, 2 red marbles, 3 white marbles, and 4 green marbles in a bag. Once a marble is drawn, it is replaced. What is the probability of drawing a red marble then an orange marble then a green marble?</td>
</tr>
<tr>
<td>22.</td>
<td>There are 2 green marbles, 7 blue marbles, 3 white marbles, and 4 purple marbles in a bag. Once a marble is drawn, it is \textit{not} replaced. What is the probability of drawing a green marble then a white marble?</td>
</tr>
<tr>
<td>23.</td>
<td>There are 2 green marbles, 7 blue marbles, 3 white marbles, and 4 purple marbles in a bag. Once a marble is drawn, it is \textit{not} replaced. What is the probability of drawing a blue marble then a purple marble?</td>
</tr>
<tr>
<td>24.</td>
<td>There are 2 green marbles, 7 blue marbles, 3 white marbles, and 4 purple marbles in a bag. Once a marble is drawn, it is \textit{not} replaced. What is the probability of drawing two blue marbles in a row?</td>
</tr>
</tbody>
</table>
25. There are 2 green marbles, 7 blue marbles, 3 white marbles, and 4 purple marbles in a bag. Once a marble is drawn, it is *not* replaced. What is the probability of drawing two marbles in a row that are *not* purple?

\[
\frac{11}{20}
\]

26. There are 2 green marbles, 7 blue marbles, 3 white marbles, and 4 purple marbles in a bag. Once a marble is drawn, it is *not* replaced. What is the probability of drawing a white marble then a purple marble?

\[
\frac{1}{20}
\]

27. There are 2 green marbles, 7 blue marbles, 3 white marbles, and 4 purple marbles in a bag. Once a marble is drawn, it is *not* replaced. What is the probability of drawing three purple marbles in a row?

\[
\frac{1}{140}
\]

28. A number cube numbered from 1 to 6 is rolled and the spinner is spun. What is the probability of rolling a 2 and the arrow on the spinner landing on a space marked green triangle?

\[
\frac{1}{48}
\]

29. A number cube numbered from 1 to 6 is rolled and the spinner is spun. What is the probability of rolling an odd number and the arrow on the spinner landing on a space marked circle?

\[
\frac{1}{8}
\]

30. A number cube numbered from 1 to 6 is rolled and the spinner is spun. What is the probability of rolling a prime number and the arrow on the spinner landing on a space marked quadrilateral?

\[
\frac{1}{4}
\]