## Algebra 2

## 8-04 Independent and Dependent Events

- $\qquad$ events $\rightarrow$ $\qquad$ outcomes


## Independent Events

- One event $\qquad$ affect the other event
- $\quad P(A$ and $B)=P(A) \cdot P(B)$
- $\quad P(A \mid B)=P(A)$ and $P(B \mid A)=P(B)$


## Dependent Events

- One event $\qquad$ affect the other event
- $\quad P(A$ and $B)=P(A) \cdot P(B \mid A)$

A bag contains six pieces of paper, numbered 1 through 6 . You randomly select a piece of paper, replace it, and then randomly select another piece of paper. Use a sample space to determine whether randomly selecting a 5 first and randomly selecting an odd number second are independent events.

A bag contains six pieces of paper, numbered 1 through 6 . You randomly select a piece of paper, set it aside, and then randomly select another piece of paper. Use a sample space to determine whether randomly selecting an even number first and randomly selecting a 4 second are independent events.

A store surveys customers of different ages. The survey asks whether they want to see the store expand its toy department. The results, given as joint relative frequencies, are shown in the two-way table. Determine whether wanting to see the store expand and being less than 10 years old are independent events.

|  |  | Age (in years) |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | < 10 | 10-20 | > 20 |
|  | Yes | 0.27 | 0.06 | 0.23 |
|  | No | 0.09 | 0.17 | 0.18 |

Find the probability that you get an even number on your first spin and a number less than 3 on your second spin.

Nine women and six men are on a committee. One person is randomly selected to be the chairperson and a different person is randomly selected to be the treasurer. Find the probability that both events $A$ and $B$ will occur.
Event $A$ : The chairperson is a man.
Event $B$ : The treasurer is a woman.
$430 \# 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,41=20$

