

# The Addition Rule

1. Two events A and B are \_\_\_\_\_ if A and B \_\_\_\_\_.

**Example 1:** Decide if the events are mutually exclusive.

- a. Select a card from a standard deck      A: The card is a jack      B: The card is a face card
- b. Select a student:      A: The student is 20 years old.      B: The student has blue eyes.
- c. Selected a registered vehicle:      A: The vehicle is a Ford.      B: The vehicle is a Toyota.

## 2. The Addition Rule for the Probability of A or B

If events A and B are mutually exclusive, then the rule for addition is \_\_\_\_\_.

If events A and B are not mutually exclusive, then the rule for addition is \_\_\_\_\_.

**Example 2:**

- a. You select a card from a standard deck. Find the probability that the card is a 9 or a King.
- b. You roll a die. Find the probability of rolling a number greater than 3 or an odd number.
- c. A card is selected from a standard deck. Find the probability that the card is a 10 or a heart.

**Example 3:** A blood bank catalogs the types of blood, including positive or negative Rh-factor, given by donors during the last five days. The number of donors who gave each blood type is shown in the table. A donor is selected at random.

		O	A	B	AB
RH – factor	Positive	156	139	37	12
	Negative	28	25	8	4

1. Find the probability that the donor has type O or type A blood.
2. Find the probability that the donor has type B blood or is Rh-negative.
3. Find the probability that the donor has type B or type AB blood.
4. Find the probability that the donor has type A blood or is Rh-positive.