

# Assignment

## Write

Describe in your own words the effects of the phrases “with replacement” and “without replacement” on sample space in a compound probability problem.

## Remember

Situations “with replacement” generally involve independent events. In this type of situation, the first event does not affect subsequent events. Situations “without replacement” generally involve dependent events. In this type of situation, the first event affects each subsequent event.

## Practice

1. A game includes a deck of cards with an animal picture on each card. The table shows the numbers of each type of card. Suppose each time a card is chosen, the card is replaced before another card is chosen.

Number of Cards	Animal on Card
8	lion
6	giraffe
10	monkey
12	elephant
4	panda bear

- A child draws out two cards. What is the probability that the first card will have a monkey on it and the second card will have an elephant on it?
  - A child draws out two cards. What is the probability that the first card will have a lion on it or the second card will have a giraffe on it?
  - A child draws out two cards. What is the probability that the second card will have a panda bear on it?
  - A child draws out three cards. What is the probability that the first card will have a lion on it, and the third will have a monkey on it?
  - A child draws out five cards. What is the probability that they will all have a different animal on them?
2. Consider the same game and deck of cards from Question 1. This time when a card is chosen, it is not replaced in the deck.
- A child draws out two cards. What is the probability that the first card will have an elephant on it and the second card will have a lion on it?
  - A child draws out two cards. What is the probability that the first card will have a monkey on it or the second card will have a panda bear on it?
  - A child draws out three cards. What is the probability that the second card will have a lion on it?
  - A child draws out two cards. What is the probability that the first card will have a panda bear on it or the second card will have a giraffe on it?
  - A child draws out three cards. What is the probability that the second and third cards will display elephants?
  - A child draws out two cards. What is the probability that the first card will have a lion on it or the second card will have a monkey on it?

## Stretch

- A game includes a deck of cards with a color on each card. The table shows the numbers of each type of card. When a card is chosen, it is not replaced in the deck.
  - A player draws out ten cards. What is the probability that all the cards are red except the last card, which is teal?
  - A player draws out five cards. What is the probability that none of the cards are orange?

Number of Cards	Color on Card
15	red
12	yellow
10	green
14	blue
16	orange
15	purple
20	teal

## Review

- Consider the spinner and the set of cards shown in the figure. A player spins the spinner one time and then randomly chooses a card. What is the probability that the spinner will land on the letter B or the player will choose a blue card?
- Two bags of marbles with the given contents are used for a game.
 

Bag A: 6 red, 5 blue, 4 white

Bag B: 6 green, 5 orange, 4 purple, 3 black

A player chooses two marbles from Bag B. What is the probability that the player will choose an orange marble first or a black marble second?
- Consider circle  $P$  with its center point located at  $(-2, -3)$  with a radius of  $3\sqrt{5}$  units as shown.
  - Verify that point  $H(-8, 0)$  lies on circle  $P$ .
  - Use symmetry to determine three more points on circle  $P$ .
- Determine whether each quadratic equation is in factored, general or vertex form.
  - $y = -2(x - 4)(x + 5)$
  - $y = 3(x + 1)^2 - 10$

