

Assignment

Write

Describe the difference between the Rule of Compound Probability involving *and* for independent and dependent events in your own words.

Remember

A compound event is an event that consists of two or more events. If the events are combined by the word *and*, you can multiply the probability of each event to determine the compound probability.

Practice

1. Suppose a player chooses cards from the two decks shown. The subsets of cards are labeled C1 to C7 (see figure).

- a. A player chooses one card from Deck A and one card from Deck B.

What is the probability that the player will choose cards C1 and C4?

- b. A player chooses one card from Deck A and replaces it. Then the next player chooses one card from Deck A. What is the probability that both players will choose a C2 card?

- c. A player chooses two cards at the same time from Deck B. What is the probability that the player will choose two C5 cards?

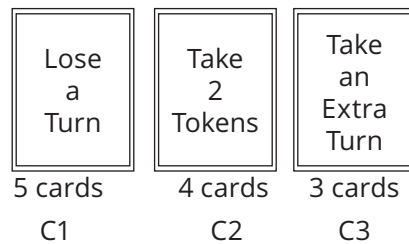
- d. A player chooses one card from Deck A and one card from Deck B. What is the probability of not choosing a C1 card from Deck A and the probability of not choosing a C7 card from Deck B?

- e. A player chooses one card from Deck A and then, without replacing it, chooses another card from Deck A. What is the probability that the first card will be a C2 and the second card will not be a C2?

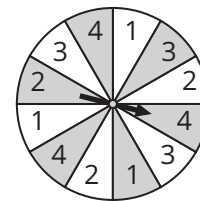
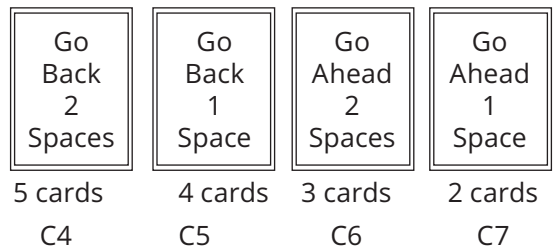
2. The board game includes both the spinner and the set of tokens shown in the figure.

- a. A player spins the spinner once and then randomly chooses a token. What is the probability that the spinner will land on a 4 and the player will choose a cube token?
- b. A player spins the spinner twice. What is the probability that the second spin will land on a 3?
- c. A player chooses a token from the set, replaces it, and then chooses another token from the set. What is the probability that the first token chosen will be a cube and the second will be a disk?

Deck A



Deck B



- d. A player chooses two tokens from the set at the same time. What is the probability that both will be pyramids?
- e. A player spins the spinner once and then randomly chooses a token. What is the probability that the spinner will not land on a 3 and the player will choose a disk token?
- f. A player randomly chooses three tokens at once from the set. What is the probability that the first two tokens are cubes?

Stretch

1. A batch of 100 calculators are manufactured in a day on a factory line. There are 5 calculators that are defective in the batch. On another line, a batch of 5000 computers are manufactured. There are 50 computers that are defective in the batch. On the third line, a batch of 1000 fitness watches are manufactured. There are 25 watches that are defective in the batch.
 - a. A quality control inspector randomly picks a calculator, a computer, and a fitness watch from the three batches. What is the probability all of them are defective?
 - b. A quality control inspector randomly picks 3 calculators from the batch without replacing any of them. What is the probability the first is defective and the second two are not defective?
 - c. A quality control inspector randomly picks 2 calculators, 1 computer, and 2 watches without replacing any of them. What is the probability none of the products are defective?
2. Tushar has a bag of candy that contains 4 lollipops, 8 chocolate bars, and 5 pieces of taffy.
 - a. If Tushar randomly picks a piece of candy, what is the probability it is a lollipop?
 - b. If Tushar randomly picks a piece of candy, what is the probability it is a chocolate bar?
 - c. If Tushar randomly picks a piece of candy, what is the probability it is a lollipop or a chocolate bar?
 - d. What is the mathematical relationship between the answers to parts (a), (b), and (c)?

Review

1. Suppose you roll a number cube once. The number cube is numbered 1 through 10.
 - a. Identify the sample space.
 - b. Determine the probability of rolling an odd number, $P(\text{odd})$.
 - c. Determine the probability of rolling a number that is not a multiple of 5, $P(\text{not a multiple of 5})$.
2. Determine whether $4x^2 + 4y^2 - 16x - 24y + 16 = 0$ represents a circle. If so, describe the location of the center and radius.
3. Write an equation in standard form for a parabola with a vertex of $(-2, 3)$ and a focus of $(-2, 1)$. Then graph and label the parabola.
4. Write the equation for the function that results when the basic function $f(x) = x^2$ is translated up four units and is vertically stretched by a factor of 3.
5. Determine the solutions for $x^2 + 13x - 20 = 0$.