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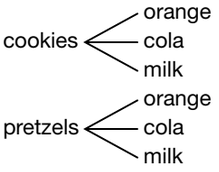
# Compound Events (Pages 413–419)

A **compound event** consists of two or more simple events. You can use a **tree diagram** to find the possible **outcomes** of a compound event. When one choice *does not* affect the others, we say that these are **independent events**. If the outcome of an event *does* affect the outcome of another event, we say that these are **dependent events**.

## EXAMPLES

**A** For a snack, you can choose to have cookies or pretzels. In addition, you can choose one drink from orange, cola, or milk. How many possible outcomes are there?

*Use a tree diagram. This tree diagram shows that there are 6 possible outcomes.*




**B** What is the probability that someone making a random choice will have milk?

*Since two of the possible 6 outcomes include milk, the probability is* $\frac{2}{6}$ *or* $\frac{1}{3}$.

## PRACTICE

1. **School** Eva forgot to study one of the chapters for her history test so she had to guess on two multiple-choice questions which each had four answer choices.
   **a.** Draw a tree diagram to show the possible answer outcomes.
   **b.** What is the probability that she got both questions correct?
2. **Food** You are making a sandwich for lunch and need to choose one item from each category for your sandwich: rye or white bread; ham, turkey, or beef; and swiss or cheddar cheese.
   **a.** Draw a tree diagram showing all of the meal combinations.
   **b.** If items are chosen at random, what is the probability that your sandwich will contain turkey?
   **c.** If you do not like turkey, how many combinations does that leave you?
3. **Gift Wrapping** A gift-wrapping service offers the following choices.
   **Paper:** Sunflowers, Stripes, Spirals, Silver Plaid
   **Ribbon:** White, Silver, Yellow, Gold
   **a.** What is the probability that a customer who chooses at random will choose sunflower paper and yellow ribbon?
   **b.** If you choose at random, what is the probability of selecting paper with either stripes or spirals with white ribbon?

4. **Standardized Test Practice** How many combinations of cars are there when choosing from four color options, manual or automatic and cassette or CD player?
   **A** 4 combinations **B** 8 combinations
   **C** 16 combinations **D** 64 combinations

**Answers:** **1a.** See Answer Key. **1b.** $\frac{1}{16}$ **2a.** See Answer Key. **2b.** $\frac{1}{3}$ **2c.** 8 combinations **3a.** $\frac{1}{20}$ **3b.** $\frac{1}{10}$ **4.** C