Name: **School:** **Grade:** **Class:**

7-5 Sample Spaces - Practice and Problem Solving

5. **MUSIC** In how many ways can Kame listen to 4 CDs assuming he listens to each CD once?

Let 1 = CD 1, 2 = CD 2, 3 = CD 3, and 4 = CD 4. The different ways are 1234; 1243; 1324; 1342; 1423; 1432; 2134; 2143; 2314; 2341; 2413; 2431; 3124; 3142; 3214; 3241; 3412; 3421; 4123; 4132; 4213; 4231; 4312; and 4321. So, Kame can listen to four CDs 24 ways.

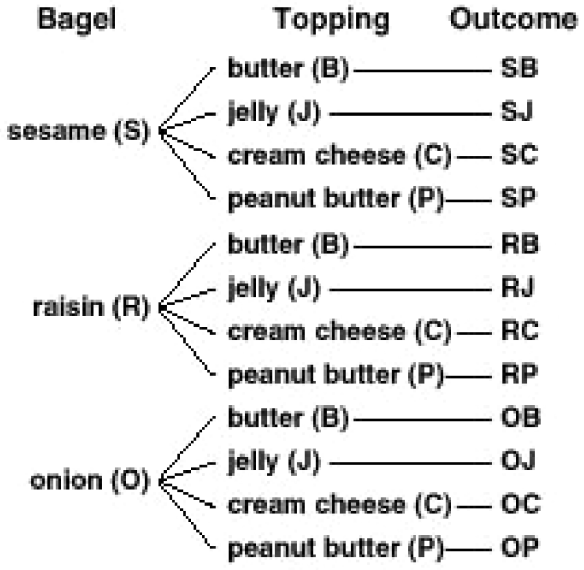
7. **RESEARCH** Use the Internet or another source to find the fifth book on the all-time best-selling list of children's hardcover books. How many book and gift bag combinations are possible if Ms. Collins can also choose from the fifth best-selling book?

Harry Potter and the Goblet of Fire; 10 possible combinations

Book	Gift Bag
The Poky Little Puppy	yellow
The Poky Little Puppy	green
The Tale of Peter Rabbit	yellow
The Tale of Peter Rabbit	green
Tootle	yellow
Tootle	green
Green Eggs and Ham	yellow
Green Eggs and Ham	green
Harry Potter and the Goblet of Fire	yellow
Harry Potter and the Goblet of Fire	green

Draw a tree diagram to show the sample space for each situation. Then tell how many outcomes are possible.

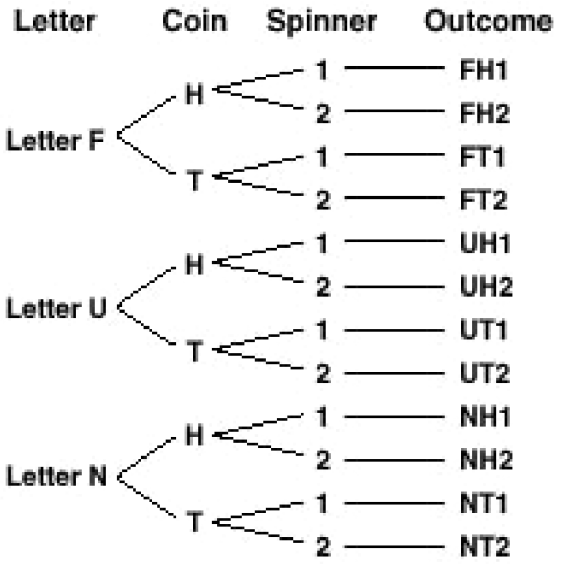
9. sesame, raisin, or onion bagel with butter, jelly, cream cheese, or peanut butter



There are 12 possible outcomes.

Name: **School:** **Grade:** **Class:**

11. select a letter from the word FUN, toss a coin, and spin a spinner with 2 sections



There are 12 possible outcomes.

Use the Fundamental Counting Principle to find the total number of possible outcomes for each of the following.

13. tossing a coin and selecting one letter from the word *outcome*

Multiply the possible outcomes for each event.
$2 \times 7 = 14$

15. selecting one entrée from a choice of nine entrées and one dessert from a choice of three desserts

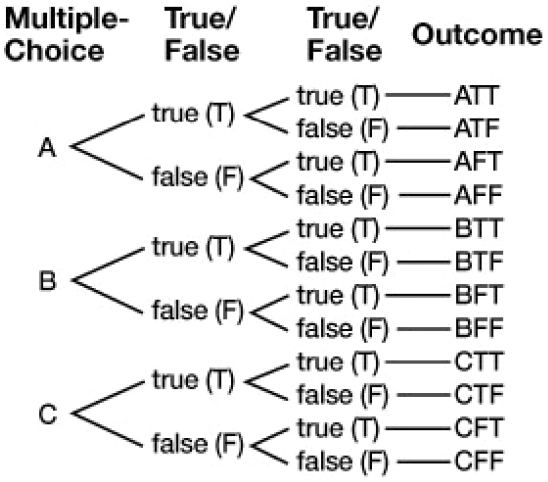
Multiply the possible outcomes for each event.
$9 \times 3 = 27$

17. selecting on month of the year and one day of the week

Multiply the possible outcomes for each event.
$12 \times 7 = 84$

Name: **School:** **Grade:** **Class:**

19. **SCHOOL** A science quiz has one multiple-choice question with answer choices A, B, and C, and two true/false questions. Draw a tree diagram that shows all of the ways a student can answer the questions. Then find the probability of answering all three questions correctly by guessing.



Only one of the 12 listed outcomes is completely correct. So, if you guess randomly, the probability is $\frac{1}{12}$.

Use the required clothing list for Camp Wood Springs.

21. What is P(shorts, T-shirt, white socks)?

Multiply the possible outcomes for each event.

$$\frac{2}{3} \times \frac{2}{3} \times \frac{1}{2} = \frac{4}{18} = \frac{2}{9}$$

Name: School: Grade: Class:

23. **REASONING** The names of 5 students, Kayla, Jeremy, Chi-Wei, Martin, and Sunil, are written on 5 pieces of paper and placed in a hat. Without looking, three names will be selected from the hat. Find the sample space of each situation below. Then explain how the situations are different and how the sample space if affected.
a. the number of three-student groups that are possible
b. the number of different ways that three students are chosen such that the first student is captain, the second student is co-captain, and the third student is the group secretary

a. 10 groups; b. 30 ways; Sample answer: By just choosing a three-student group, the order in which the names are drawn does not matter. When the order matters, such as in part b, the sample space is increased. A three-person group of Kayla, Jeremy, and Chi-Wei is the same as a three-person group of Jeremy, Chi-Wei, and Kayla. However, these two groupings would reflect different orderings of captain, co-captain, and secretary in part b.

25. **WRITING IN MATH** Describe a situation in which there are 12 possible outcomes.

Sample answer: The results when a number cube is rolled and a coin is tossed.

Name: **School:** **Grade:** **Class:**

27. Joey's Pizza Parlor offers 3 kinds of toppings and 3 sizes of pizza. Which table shows all the possible 1 topping pizzas?

F

Size	Toppings
Small	Pepperoni
Medium	Pepperoni
Large	Pepperoni
Small	Cheese
Medium	Cheese
Large	Cheese

G

Size	Toppings
Small	Pepperoni
Small	Pepperoni
Small	Pepperoni
Medium	Cheese
Medium	Cheese
Medium	Cheese
Large	Veggie
Large	Veggie
Large	Veggie

H

Size	Toppings
Small	Pepperoni
Medium	Cheese
Large	Veggie

J

Size	Toppings
Small	Pepperoni
Small	Cheese
Small	Veggie
Medium	Pepperoni
Medium	Cheese
Medium	Veggie
Large	Pepperoni
Large	Cheese
Large	Veggie

The table should show 3 different toppings for each size of pizza. The correct table is J.

A drawer of silverware contains 6 forks, 5 knives, and 3 spoons. One piece of silverware is selected at random. Find the probability of each event.

29. P(knife or spoon)

$$P(\text{knife or spoon}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$
$$= \frac{8}{14}$$
$$= \frac{4}{7}$$

31. **SNOWBOARDING** At a popular ski resort, 35% of all people who buy tickets are snowboarders. What decimal is equivalent to 35%?

$$35\% = \frac{35}{100}$$
$$= 0.35$$

PREREQUISITE SKILL Solve each proportion.

33. $\frac{k}{9} = \frac{10}{45}$

$$\frac{k}{9} = \frac{10}{45}$$
$$\frac{k}{9} = \frac{10 \div 5}{45 \div 5}$$
$$= \frac{2}{9}$$
$$k = 2$$

35. $\frac{15}{35} = \frac{3}{d}$

$$\frac{15}{35} = \frac{3}{d}$$
$$\frac{15 \div 5}{35 \div 5} = \frac{3}{d}$$
$$= \frac{3}{7}$$
$$d = 7$$