

The counting principle can be extended to three or more events.

EXAMPLE

Greta must choose a 4-digit password for her cell phone mailbox. Use the counting principle to find the number of possible 4-digit passwords.

For each of the 4 digits in the password, there are 10 choices: 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.



$$10 \times 10 \times 10 \times 10 = 10,000$$

► There are 10,000 possible 4-digit passwords.

PRACTICE

In Exercises 1–3, use the indicated counting method to answer the question.

- Andrew, Bettina, and Carl are triplets. In how many different ways can the triplets stand in a row for a photo? (Make a list.)
- The sign at the right shows the color and size choices for school T-shirts. How many different types of school T-shirts are available? (Draw a tree diagram.)
- A 3-letter monogram consists of the first letter of a person's first name, middle name, and last name. For example, Matthew David Weaver's monogram is MDW. How many different 3-letter monograms are possible? (Use the counting principle.)

School T-Shirts \$9.99

Choose 1 color and 1 size.

Colors: Black, Gold, or White	Sizes: S, M, L, or XL
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In Exercises 4–8, answer the question using any counting method you choose.

- How many different pizzas with 2 different toppings are available for the large pizza special advertised at the right?
- Lance must choose 4 characters for his computer password. Each character can be any letter A–Z or any digit 0–9. How many different computer passwords are possible?
- Mia must choose 3 whole numbers less than 50 for her locker combination. The numbers may be repeated. How many different locker combinations are possible?
- A restaurant offers a dinner special. You can choose a main course, a vegetable, and a salad from a choice of 6 main courses, 4 vegetables, and 3 salads. How many different dinners are available?
- Each day Scott walks, rides the bus, or gets a ride to school. He has each of the same possibilities for getting home each day. How many combinations of travel to and from school does Scott have?

Large Pizza Special

Any 2 toppings for \$12.49

Pepperoni	Black olive
Sausage	Green pepper
Ground beef	Red onion
Extra cheese	Mushroom