

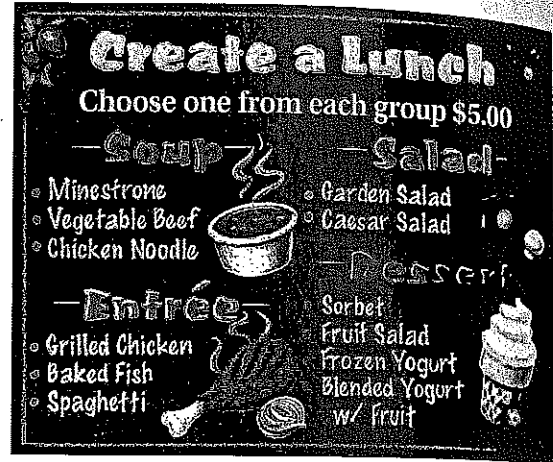
go.hrw.com  
 Homework Help Online  
 KEYWORD: MA7 10-8  
 Parent Resources Online  
 KEYWORD: MA7 Parent

**GUIDED PRACTICE**

1. **Vocabulary** A \_\_\_\_\_? \_\_\_\_\_ is an arrangement of outcomes in which the order does not matter. (*compound event, permutation, or combination*)

SEE EXAMPLE 1  
 p. 736

2. The menu for a restaurant is shown. How many different meals with one salad, one soup, one entree, and one dessert are possible?
3. You have 4 colors of wrapping paper and 2 kinds of ribbon. How many different ways are there to use one color of paper and one type of ribbon to wrap a package?



SEE EXAMPLE 2  
 p. 737

Tell whether each situation involves combinations or permutations. Then give the number of possible outcomes.

4. How many different ways can 4 people be seated in a row of 4 seats?
5. How many different kinds of punch can be made from 2 of the following: cranberry juice, apple juice, orange juice, and grape juice?

SEE EXAMPLE 3  
 p. 738

6. An airport identification code is made up of three letters, like the examples shown. How many different airport identification codes are possible? (Assume any letter can be repeated and can appear in any position.)
7. A manager is scheduling interviews for job applicants. She has 8 time slots and 6 applicants to interview. How many different interview schedules are possible?
8. An e-mail server password must be 6 different lowercase letters. How many different e-mail server passwords are possible?

<b>ABQ</b>	Albuquerque International Airport, New Mexico
<b>DFW</b>	Dallas/Fort Worth International Airport, Texas
<b>JFK</b>	John F. Kennedy International Airport, New York
<b>LAX</b>	Los Angeles International Airport, California
<b>ORD</b>	O'Hare International Airport, Illinois

SEE EXAMPLE 4  
 p. 739

9. Francine is deciding which after-school clubs to join. She has time to participate in 3. How many different ways can Francine choose which 3 clubs to join?
10. Laura is making gift baskets. Each basket has 2 gifts, and she has 5 gifts to choose from. How many different gift baskets can Laura make?
11. How many different ways can a contest judge select 5 finalists from 20 contestants?



## PRACTICE AND PROBLEM SOLVING

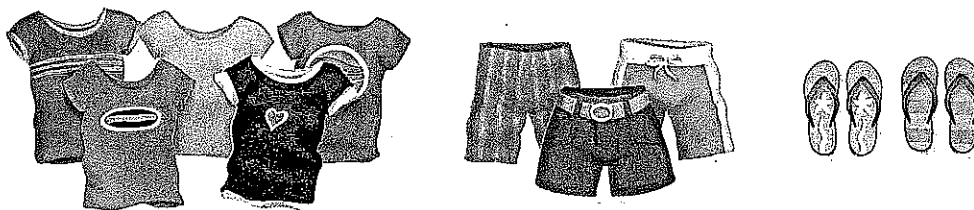
### Independent Practice

For Exercises	See Example
12–13	1
14–15	2
16–17	3
18–19	4

### Extra Practice

Skills Practice p. S23  
Application Practice p. S37

12. Maria looks in her closet and exclaims, "I have nothing to wear!" How many different outfits of one shirt, one pair of shorts, and one pair of sandals are possible using the items shown?



13. When a customer buys tickets for a concert, the ticket office assigns a confirmation code that is made up of 2 lowercase consonants, followed by 3 numbers. A letter or number may be repeated. How many different confirmation codes are possible?

Tell whether each situation involves a combination or a permutation. Then give the number of possible outcomes.

14. A team of archeologists divides a dig site into 3 areas. They dig one area at a time. How many different ways can they order the 3 areas?

15. To decide which team will lead the class discussion, a teacher writes the names of 5 students on slips of paper and puts them in a hat. Then she draws 2 names. How many teams of two are possible?

16. The code for a bicycle lock is made up of 4 digits from 0 through 9. How many different codes are possible?

17. A television station has 5 different commercials to play during the news. In how many different ways can they order the commercials?

18. David's summer reading list has 9 books. How many different ways can David select 3 books to read?

19. Steve draws a hand of 7 cards from a deck of 52 different cards. How many different hands are possible?

20. **History** The North American Numbering Plan (NANP) was first used in 1947. It is a system for assigning telephone numbers and area codes.

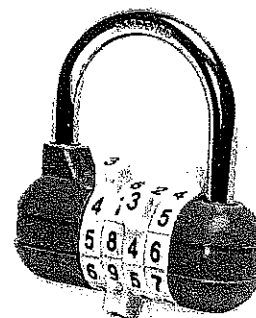
a. Originally, the NANP allowed only 3-digit area codes whose first digit was not 0 or 1, and whose second digit was always 0 or 1. How many different area codes were possible under this system?

b. In 1995, because of increased demand, the NANP removed the restriction that the second digit of the area code must be 0 or 1. How many more area codes did this make possible?

21. **Critical Thinking** For  $n = 6$  and  $r = 2$ , which is larger:  ${}_nP_r$  or  ${}_nC_r$ ? Explain why this is true.

22. **Write About It** Brian forgot the combination to open his locker. Explain why a "combination lock" should be called a "permutation lock."

23. **Write About It** You roll a number cube 6 times. Explain how to determine the number of possible outcomes. Would a tree diagram be useful in solving this problem? Explain why or why not.



### LINK

#### History



Telephone "numbers" used to be made up of two letters and several digits. Calls were made by speaking the telephone number to a central operator, who then connected the call by hand.