

# 13 CHAPTER TEST

You roll a number cube. Find (a) the probability that the number rolled is as described and (b) the odds in favor of rolling such a number.

1. a 4
2. an even number
3. a number less than 5
4. a multiple of 3

Evaluate the expression.

5.  ${}_7P_2$
6.  ${}_8P_3$
7.  ${}_6C_3$
8.  ${}_{12}C_7$

Tell whether the question can be answered using *combinations* or *permutations*. *Explain* your choice, then answer the question.

9. Eight swimmers participate in a race. In how many ways can the swimmers finish in first, second, and third place?
10. A restaurant offers 7 different side dishes. In how many different ways can you choose 2 side dishes?

In Exercises 11 and 12, refer to a bag containing 12 tiles numbered 1–12.

11. You choose a tile at random. What is the probability that you choose a number less than 10 or an odd number.
12. You choose a tile at random, replace it, and choose a second tile at random. What is the probability that you choose a number greater than 3, then an odd number.
13. **GOVERNMENT PROJECT** City officials want to know whether residents will support construction of a new library. This question appears on the ballot in the citywide election: “Do you support a tax increase to replace the old, deteriorating library with a brand new one?” Is the question potentially biased? *Explain* your answer. If the question is potentially biased, rewrite it so that it is not.
14. **BASKETBALL** The back-to-back stem-and-leaf plot shows the heights (in inches) of the players on a high school’s basketball teams.

**Basketball Players’ Heights**

Girls	Boys
9 7 7 6 6 5 3 3	6 9 9 9
3 2 1 1 0	7 0 0 0 2 4 4 6 6 7 7 7 8

Key: 3 | 6 | 9 = 63 in., 69 in.

- a. Find the mean, median, and mode(s) of each data set. Which measure of central tendency best represents each data set? *Explain*.
- b. Find the range and mean absolute deviation of each data set. Which team’s heights are more spread out? *Explain*.
- c. Make a box-and-whisker plot of each data set.
- d. *Compare* the boys’ heights with the girls’ heights.