## 1 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. a number less than 5

Evaluate the expression.
5. ${ }_{7} P_{2}$
6. ${ }_{8} P_{3}$
7. ${ }_{6} C_{3}$
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?

Find the indicated probability.
13. $P(A)=0.3$
$P(B)=0.6$
$P(A$ or $B)=$ ?
$P(A$ and $B)=0.1$
16. $A$ and $B$ are independent.
$P(A)=0.15$
$P(B)=0.6$
$P(A$ and $B)=?$
14. $P(A)=35 \%$
$P(B)=$ ?
$P(A$ or $B)=80 \%$
$P(A$ and $B)=20 \%$
17. $A$ and $B$ are dependent.
$P(A)=60 \%$
$P(B \mid A)=$ ?
$P(A$ and $B)=25 \%$
15. $P(A)=$ ?
$P(\bar{A})=\frac{2}{5}$
18. $A$ and $B$ are dependent.
$P(A)=$ ?
$P(B \mid A)=0.4$
$P(A$ and $B)=0.36$
19. EDUCATION A high school has an enrollment of 1800 students. There are 1050 females enrolled in the school. The high school has 1200 students who are involved in an after-school activity, 725 of whom are female. What is the probability that a randomly selected student at the school is a female who is not involved in an after-school activity?

