

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.**  $_{7}P_{2}$  **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.

<b>13.</b> $P(A) = 0.3$ P(B) = 0.6 $P(A \text{ or } B) = \underline{?}$ P(A  and  B) = 0.1	<b>14.</b> $P(A) = 35\%$ $P(B) = \underline{?}$ P(A  or  B) = 80% P(A  and  B) = 20%	<b>15.</b> $P(A) = \underline{?}$ $P(\overline{A}) = \frac{2}{5}$
<b>16.</b> <i>A</i> and <i>B</i> are independent.	<b>17.</b> <i>A</i> and <i>B</i> are dependent.	<b>18.</b> <i>A</i> and <i>B</i> are dependent
P(A) = 0.15	P(A) = 60%	$P(A) = \underline{?}$
P(B) = 0.6	$P(B A) = \underline{?}$	P(B A) = 0.4
P(A  and  B) = ?	P(A  and  B) = 25%	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?