

**A bag contains 25 marbles: 10 black, 13 red, and 2 blue. A marble is drawn from the bag at random.**

2. Explain why the events “getting a black marble” and “getting a red marble” are mutually exclusive.
3. What is the probability of getting a red or a blue marble?
4. A car approaching an intersection has a 0.1 probability of turning left and a 0.2 probability of turning right. Explain why the events are mutually exclusive. What is the probability that the car will turn?

**Numbers 1–10 are written on cards and placed in a bag. Find each probability.**

5. choosing a number greater than 5 or choosing an odd number
6. choosing an 8 or choosing a number less than 5
7. choosing at least one even number when selecting 2 cards from the bag

**Five years after 650 high school seniors graduated, 400 had a college degree and 310 were married. Half of the students with a college degree were married.**

8. What is the probability that a student has a college degree or is married?
9. What is the probability that a student has a college degree or is not married?
10. What is the probability that a student does not have a college degree or is married?
11. A vending machine offers 8 different drinks. One day, 6 employees each purchased a drink from the vending machine. Find the probability that at least 2 employees purchased the same drink.

Jump ropes are given out during gym class. A student has a  $\frac{1}{6}$  chance of getting a red jump rope and a  $\frac{1}{3}$  chance of getting a green jump rope. Meg is given a jump rope.

12. Explain why the events “getting a red jump rope” and “getting a green jump rope” are mutually exclusive.
13. What is the probability that Meg gets a red or green jump rope?

The letters  $A$ – $P$  are written on cards and placed in a bag. Find the probability of each outcome.

14. choosing an  $E$  or choosing a  $G$                       15. choosing an  $E$  or choosing a vowel

Lincoln High School has 98 teachers. Of the 42 female teachers, 8 teach math. One-seventh of all of the teachers teach math.

16. What is the probability that a teacher is a woman or teaches math?
17. What is the probability that a teacher is a man or teaches math?
18. What is the probability that a teacher is a man or does not teach math?
19. A card is drawn from a deck of 52 and recorded. Then the card is replaced, and the deck is shuffled. This process is repeated 13 times. What is the probability that at least one of the cards drawn is a heart?
20. **Critical Thinking** Events  $A$  and  $B$  are mutually exclusive. Must the complements of events  $A$  and  $B$  be mutually exclusive? Explain by example.

21. **Television** According to Nielsen Media Research, on June 21, 2005, from 9 to 10 P.M., the NBA Finals Game 7 between San Antonio and Detroit had a 22 *share* (was watched by 22% of television viewers), while *CSI* had a 15 share. What is the probability that someone who was watching television during this time watched the NBA Finals or *CSI*? Do you think that this is theoretical or experimental probability? Explain.