

Practice 11.4

State whether each pair of events is dependent or independent.

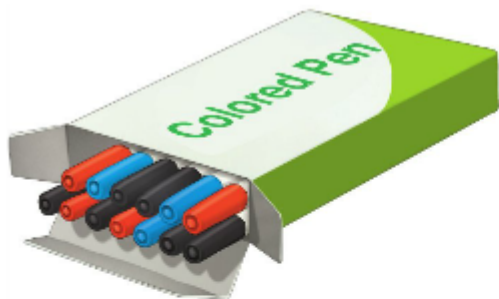
- 1 Drawing 2 red balls randomly, one at a time without replacement, from a bag of 6 balls
- 2 Tossing a coin twice
- 3 Reaching school late or on time for two consecutive days
- 4 Flooding of roads during rainy or sunny days

Draw a tree diagram for each situation.

- 5 2 balls are drawn at random, one at a time without replacement, from a bag of 3 green balls and 18 red balls.
- 6 The probability of rain on a particular day is 0.3. If it rains, then the probability that Renee goes shopping is 0.75. If it does not rain, then the probability that she goes jogging is 0.72. Assume that shopping and jogging are mutually exclusive and complementary, and that rain and no rain are complementary.

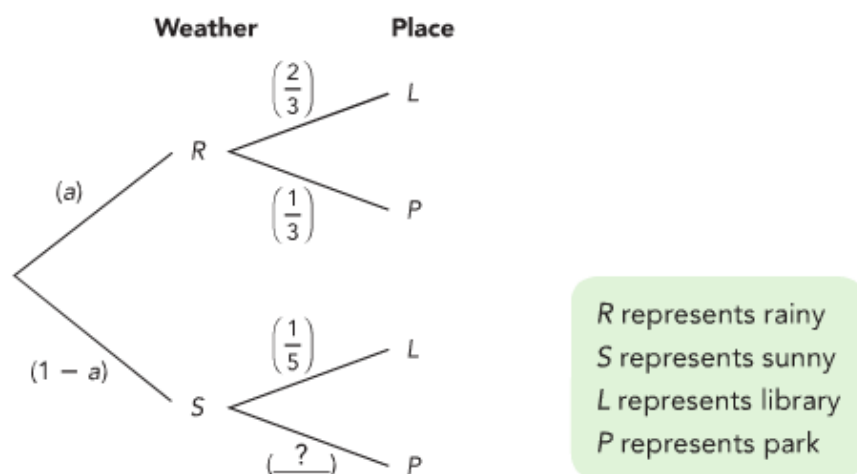
Solve. Show your work.

- 7 Geraldine has a box of 13 colored pens: 3 blue, 4 red, and the rest black. What is the probability of drawing two blue pens randomly, one at a time without replacement?



- 8 A box contains 8 dimes, 15 quarters, and 27 nickels. A student randomly draws two items, one at a time without replacement, from the bag. Find the probability that 2 quarters are drawn.
- 9 There are 9 green, 2 yellow, and 5 blue cards in a deck. Players A and B each randomly draw a card from the deck. Player A draws a card first before Player B. Find the probability that both players draw the same color cards.

- 10 The probability diagram below shows the probability of Xavier going to a library or a park depending if the weather is sunny or rainy. The probability of rain on a particular day is denoted by a . Assume that going to the library and going to the park are mutually exclusive and complementary.



- a) If $a = 0.3$, find the probability that Xavier goes to the park on any day.
 b) If $a = 0.75$, find the probability that he goes to the library on any day.

- 11 There are 15 apples in a fruit basket. 6 of them are red apples and the rest are green apples. Two apples are randomly picked one at a time without replacement.



- a) Draw a tree diagram to represent all possible outcomes and the corresponding probabilities.
 b) Find the probability of picking a green apple and then a red apple.
 c) Find the probability of picking two green apples.
 d) Find the probability of picking two red apples.

- 12 There are 8 people in a room: 3 of them have red hair, 2 have blonde hair, and the rest have dark hair. Two people are randomly selected to leave the room, one after another, and they do not re-enter the room.

- a) Draw a tree diagram to represent all possible outcomes and the corresponding probabilities.
 b) What is the probability of a person with dark hair leaving the room first?
 c) What is the probability of a person with red hair leaving the room, followed by a person with blonde hair?
 d) What is the probability of two people with the same hair color leaving the room?