

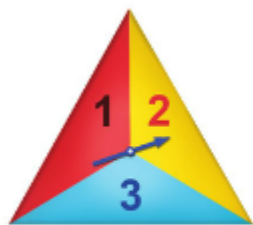
Practice 11.3

Draw a tree diagram to represent each situation.

- 1 Tossing a fair coin followed by drawing a marble from a bag of 3 marbles:
1 yellow, 1 green, and 1 blue
- 2 Drawing two balls randomly with replacement from a bag with 1 green ball and 1 purple ball
- 3 Drawing a ball randomly from a bag containing 1 red ball and 1 blue ball, followed by tossing a fair six-sided number die
- 4 Tossing a fair coin twice
- 5 Reading or playing on each day of a weekend
- 6 On time or tardy for school for two consecutive days

Solve. Show your work.

- 7 Mindy is playing a game that uses the spinner shown below and a fair coin. An outcome of 3 on the spinner and heads on the coin wins the game.



- a) Draw a tree diagram to represent all possible outcomes and the corresponding probabilities.
 - b) Find the probability of winning the game in one try.
 - c) Find the probability of losing the game in one try.
- 8 There are 2 blue balls and 4 yellow balls in a bag. A ball is randomly drawn from the bag, and it is replaced before a second ball is randomly drawn.
 - a) Draw a tree diagram to represent all possible outcomes.
 - b) Find the probability that a yellow ball is drawn first, followed by another yellow ball.
 - c) Find the probability that a yellow ball is drawn after a blue ball is drawn first.

- 9 Jasmine has 3 blue pens and 2 green pens in her pencil case. She randomly selects a pen from her pencil case, and replaces it before she randomly selects again.
- Draw a tree diagram to represent all possible outcomes and the corresponding probabilities.
 - Find the probability that she selects 2 blue pens.
 - Find the probability that she selects 2 green pens.
 - Find the probability that she selects 2 pens of the same color.
- 10 Henry has 4 fiction books, 6 nonfiction books, and 1 Spanish book on his bookshelf. He randomly selects two books with replacement.



- Draw a tree diagram to represent all possible outcomes and the corresponding probabilities.
 - Find the probability that he selects a fiction book twice.
 - Find the probability that he first selects a nonfiction book, and then a Spanish book.
 - Find the probability that he first selects a fiction book, and then a nonfiction book.
- 11 Andy tosses a fair six-sided number die twice. What is the probability of tossing an even number on the first toss and a prime number on the second toss?




- 12 The probability that Fiona wakes up before 8 A.M. when she does not set her alarm is $\frac{2}{5}$. On any two consecutive days that Fiona does not set her alarm, what is the probability of her waking up before 8 A.M. for at least one of the days?

13 A globe is spinning on a globe stand. The globe's surface is painted 30% yellow, 10% green, and the rest is painted blue. Two times Danny randomly points to a spot on the globe while it spins. The color he points to each time after the spinning stops is recorded.

- a) What is the probability that he points to the same color on both spins?
- b) What is the probability that he points to yellow at least one time?



14  *Math Journal* Sally thinks that for two independent events, because the occurrence of one event will not have any impact on the probability of the other event, they are also mutually exclusive. Do you agree with her? Explain your reasoning using an example.

15 A game is designed so that a player wins when the game piece lands on letter A. The game piece begins on letter G. A fair six-sided number die is tossed. If the number tossed is odd, the game piece moves one step counterclockwise. If the number tossed is even, the game piece moves one step clockwise.

- a) What is the probability that a player will win after tossing the number die once?
- b) What is the probability that a player will win after tossing the number die twice?

