

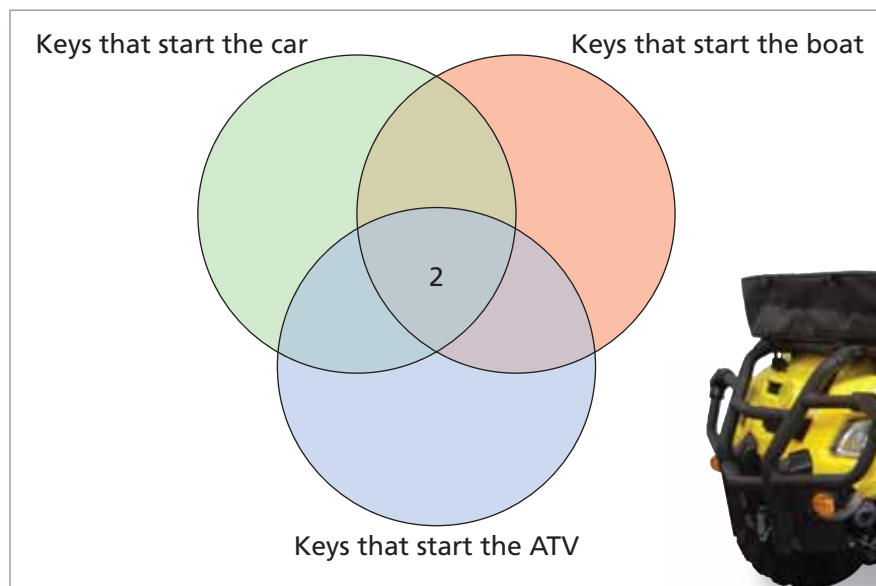
Trivia In Exercises 9 and 10, use the information below. (See Example 3.)

A contestant on a game show must answer two trivia questions correctly to advance to the next qualifying round. Of the 10 contestants, 7 answer the first question correctly and 6 answer the second question correctly.

9. Draw a set diagram that shows the information.
10. How many of the contestants advance to the next qualifying round?

Game Show In Exercises 11–16, use the information below. (See Example 4.)

A game show contestant has a chance to win a car, a boat, and an all-terrain vehicle (ATV). There are eight keys that start the engine of each prize, two of which start the engine of all three prizes. There is a 50% overlap for any 2 of the sets in the diagram.



11. How many keys start the engine of exactly one prize?
12. How many keys start the engines of exactly two prizes?
13. How many keys start the engine of the car *and* the boat?
14. How many keys start the engine of the car *or* the boat?
15. The contestant begins the game by choosing a key from a basket. How many keys are in the basket?
16. In the United States, game show contestants must pay taxes on items they win. As a result, contestants often refuse some or all of their prizes.
 - a. You win the \$40,000 car, the \$15,000 boat, and the \$5,000 ATV in December. Suppose you will owe taxes in April equal to 25% of the value of your winnings. How much will you owe? What will you do?
 - b. You decide to keep all the prizes and sell the boat to cover the taxes. Can you be certain this will cover the taxes? What other problems might you encounter?