

3. **Homes.** Real estate ads suggest that 64% of homes for sale have garages, 21% have swimming pools, and 17% have both features. What is the probability that a home for sale has

- a) a pool or a garage?
- b) neither a pool nor a garage?
- c) a pool but no garage?

4. **Travel.** Suppose the probability that a U.S. resident has traveled to Canada is 0.18, to Mexico is 0.09, and to both countries is 0.04. What's the probability that an American chosen at random has

- a) traveled to Canada but not Mexico?
- b) traveled to either Canada or Mexico?
- c) not traveled to either country?

5. **Amenities.** A check of dorm rooms on a large college campus revealed that 38% had refrigerators, 52% had TVs, and 21% had both a TV and a refrigerator. What's the probability that a randomly selected dorm room has

- a) a TV but no refrigerator?
- b) a TV or a refrigerator, but not both?
- c) neither a TV nor a refrigerator?

9. **Cards.** You draw a card at random from a standard deck of 52 cards. Find each of the following conditional probabilities:

- a) The card is a heart, given that it is red.
- b) The card is red, given that it is a heart.
- c) The card is an ace, given that it is red.
- d) The card is a queen, given that it is a face card.

10. **Pets.** In its monthly report, the local animal shelter states that it currently has 24 dogs and 18 cats available for adoption. Eight of the dogs and 6 of the cats are male. Find each of the following conditional probabilities if an animal is selected at random:

- a) The pet is male, given that it is a cat.
- b) The pet is a cat, given that it is female.
- c) The pet is female, given that it is a dog.

21. **Eligibility.** A university requires its biology majors to take a course called BioResearch. The prerequisite for this course is that students must have taken either a Statistics course or a computer course. By the time they are juniors, 52% of the Biology majors have taken Statistics, 23% have had a computer course, and 7% have done both.

- a) What percent of the junior Biology majors are ineligible for BioResearch?
- b) What's the probability that a junior Biology major who has taken Statistics has also taken a computer course?
- c) Are taking these two courses disjoint events? Explain.
- d) Are taking these two courses independent events? Explain.

24. **On the road again.** According to Exercise 4, the probability that a U.S. resident has traveled to Canada is 0.18, to Mexico is 0.09, and to both countries is 0.04.

- a) What's the probability that someone who has traveled to Mexico has visited Canada, too?
- b) Are travel to Mexico and Canada disjoint events? Explain.
- c) Are travel to Mexico and Canada independent events? Explain.

26. **Pets again.** The local animal shelter in Exercise 10 reported that it currently has 24 dogs and 18 cats available for adoption; 8 of the dogs and 6 of the cats are male. Are the species and gender of the animals independent? Explain.

15. **Repairs.** The probability model below describes the number of repair calls that an appliance repair shop may receive during an hour.

Repair Calls	0	1	2	3
Probability	0.1	0.3	0.4	0.2

- a) How many calls should the shop expect per hour?
- b) What is the standard deviation?

11. **Blood.** Only 4% of people have Type AB blood.

- a) On average, how many donors must be checked to find someone with Type AB blood?
- b) What's the probability that there is a Type AB donor among the first 5 people checked?
- c) What's the probability that the first Type AB donor will be found among the first 6 people?
- d) What's the probability that we won't find a Type AB donor before the 10th person?