

In Exercises 1 and 2, events A and B are disjoint. Find $P(A \text{ or } B)$.

1. $P(A) = 0.4, P(B) = 0.2$

2. $P(A) = \frac{1}{3}, P(B) = \frac{1}{2}$

3. At the high school swim meet, you and your friend are competing in the 50 Freestyle event. You estimate that there is a 40% chance you will win and a 35% chance your friend will win. What is the probability that you or your friend will win the 50 Freestyle event?

In Exercises 4 and 5, you roll a six-sided die. Find $P(A \text{ or } B)$.

4. **Event A :** Roll a 2.

5. **Event A :** Roll an even number.

Event B : Roll an odd number.

Event B : Roll a number greater than 3.

6. You bring your cat to the veterinarian for her yearly check-up. The veterinarian tells you that there is a 75% probability that your cat has a kidney disorder or is diabetic, with a 40% chance it has a kidney disorder and a 50% chance it is diabetic. What is the probability that your cat has both a kidney disorder and is diabetic?

3. You are performing an experiment to determine how well pineapple plants grow in different soils. Out of the 40 pineapple plants, 16 are planted in sandy soil, 18 are planted in potting soil, and 7 are planted in a mixture of sandy soil and potting soil. What is the probability that a pineapple plant in the experiment is planted in sandy soil or potting soil?

6. An Educational Advisor estimates that there is a 90% probability that a freshman college student will take either a mathematics class or an English class, with an 80% probability that the student will take a mathematics class and a 75% probability that the student will take an English class. What is the probability that a freshman college student will take both a mathematics class and an English class?

7. A test diagnoses a disease correctly 92% of the time when a person has the disease and 80% of the time when the person does not have the disease. Approximately 4% of people in the United States have the disease. Fill in the probabilities along the branches of the probability tree diagram and then determine the probability that a randomly selected person is correctly diagnosed by the test.

