

**Theoretical Probability Practice****Complete the statement.**

- If A and B are disjoint events, then  $P(A \text{ or } B) = \underline{\quad? \quad}$ .
- If A and B are overlapping events, then  $P(A \text{ or } B) = \underline{\quad? \quad}$ .
- The sum of the probabilities of complementary events is always  $\underline{\quad? \quad}$ .
- If you know the probability of an event A, then the probability of the complementary event, *not* A, is given by  $P(\text{not } A) = \underline{\quad? \quad}$ .

The spinner is divided into equal parts. For the specified events A and B, tell whether the events are *disjoint* or *overlapping*. Then find  $P(A \text{ or } B)$ .

- Event A: Stops on an even number.  
Event B: Stops on a shaded sector.
- Event A: Stops on a shaded sector.  
Event B: Stops on a multiple of 5.



Events A and B are disjoint. Find  $P(A \text{ or } B)$ .

$$7. P(A) = \frac{3}{14}, P(B) = \frac{9}{14}$$

$$8. P(A) = \frac{11}{42}, P(B) = \frac{13}{42}$$

Events A and B are overlapping. Find  $P(A \text{ or } B)$ .

$$9. P(A) = \frac{7}{20}, P(B) = \frac{9}{20}, P(A \text{ and } B) = \frac{3}{20}$$

$$10. P(A) = \frac{1}{4}, P(B) = \frac{1}{3}, P(A \text{ and } B) = \frac{5}{24}$$

Given  $P(A)$ , find  $P(\text{not } A)$ .

$$11. P(A) = 27\% \quad 12. P(A) = 89\% \quad 13. P(A) = \frac{9}{26} \quad 14. P(A) = \frac{13}{41}$$

In Exercises 15–17, use the following information. At a college, 51% of the students are women, 25% of the students are business majors, 5% have not chosen a major, and 12% are women and business majors. A student newspaper conducts a poll and selects students at random to answer a survey.

- What is the probability that a randomly selected student will be either a woman or a business major?
- What is the probability that a randomly selected student is not a business major?
- What is the probability that a randomly selected student is either a business major or has not chosen a major?