

## Lesson 12-8 Compound Events

A **compound event** is two or more events connected by the words "and" or "or."

When two events have no outcomes in common, the events are **mutually exclusive events**. If  $A$  and  $B$  are mutually exclusive events, then  $P(A \text{ and } B) = 0$ . When events have at least one outcome in common, they are **overlapping events**.

You need to determine whether two events  $A$  and  $B$  are mutually exclusive before you can find  $P(A \text{ or } B)$ .

take note

### Key Concept Probability of A or B

#### Probability of Mutually Exclusive Events

If  $A$  and  $B$  are mutually exclusive events,  $P(A \text{ or } B) = P(A) + P(B)$ .

#### Probability of Overlapping Events

If  $A$  and  $B$  are overlapping events,  $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ .

### Problem 1 Mutually Exclusive and Overlapping Events

Suppose you spin a spinner that has 20 equal-sized sections numbered from 1 to 20.

**A** What is the probability that you spin a 2 or a 5?

**B** What is the probability that you spin a number that is a multiple of 2 or 5?

**Got It?** 1. Suppose you roll a standard number cube.

a. What is the probability that you roll an even number or a number less than 4?

b. What is the probability that you roll a 2 or an odd number?

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

# 12-8 Practice

## Probability of Compound Events

Form G

Suppose you spin a spinner that has 12 equal-sized sections numbered 1 to 12. Find each probability. Remember not to count any numbers twice!

1.  $P(3 \text{ or } 4)$

2.  $P(\text{even or } 7)$

3.  $P(\text{even or odd})$

4.  $P(\text{multiple of } 3 \text{ or odd})$

5.  $P(\text{odd or multiple of } 5)$

6.  $P(\text{less than } 5 \text{ or greater than } 9)$

7.  $P(\text{even or less than } 8)$

8.  $P(\text{multiple of } 2 \text{ or multiple of } 3)$

9.  $P(\text{odd or greater than } 4)$

10.  $P(\text{multiple of } 5 \text{ or multiple of } 2)$

