4-2	The Addition Rules for Probability	2, 3, 5, 9, 11, 13, 24

2. Determine whether these events are mutually exclusive.
a. Roll a die: Get an even number, and get a number less than 3.
b. Roll a die: Get a prime number (2, 3, 5), and get an odd number.
c. Roll a die: Get a number greater than 3, and get a number less than 3.
d. Select a student in your class: The student has blond hair, and the student has blue eyes.
e. Select a student in your college: The student is a sophomore, and the student is a business major.
f. Select any course: It is a calculus course, and it is an English course.
g. Select a registered voter: The voter is a Republican, and the voter is a Democrat.

3. College Degrees Awarded The table below represents the college degrees awarded in a recent academic year by gender.

	Bachelor's	Master's	Doctorate
Men	573,079	211,381	24,341
Women	775,424	301,264	21,683

Choose a degree at random. Find the probability that it is
a. A bachelor's degree
b. A doctorate or a degree awarded to a woman
c. A doctorate awarded to a woman
d. Not a master's degree

5. Selecting an Instructor At a convention there are 7 mathematics instructors, 5 computer science instructors, 3 statistics instructors, and 4 science instructors. If an instructor is selected, find the probability of getting a science instructor or a math instructor.

9. Sports Participation At a particular school with 200 male students, 58 play football, 40 play basketball, and 8 play both. What is the probability that a randomly selected male student plays neither sport?

11. Selecting a Student In a statistics class there are 18 juniors and 10 seniors; 6 of the seniors are females, and 12 of the juniors are males. If a student is selected at random, find the probability of selecting the following.
a. A junior or a female
b. A senior or a female
c. A junior or a senior

13. Young Adult Residences According to the Bureau of the Census, the following statistics describe the number (in thousands) of young adults living at home or in a dormitory in the year 2004.

Ages	**18–24**	**Ages 25–34**
Male	7922	2534
Female	5779	995

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Choose one student at random. Find the probability that the student is
a. A female student aged 25–34
b. Male or aged 18–24
c. Under 25 years of age and not male

24. Rolling Die Two dice are rolled. Find the probability of getting
a. A sum of 8, 9, or 10
b. Doubles or a sum of 7
c. A sum greater than 9 or less than 4
d. Based on the answers to *a*, *b*, and *c*, which is least likely to occur?