

6. **Workers.** Employment data at a large company reveal that 72% of the workers are married, that 44% are college graduates, and that half of the college grads are married. What's the probability that a randomly chosen worker
- is neither married nor a college graduate?
 - is married but not a college graduate?
 - is married or a college graduate?

12. **Death penalty.** The table shows the political affiliation of American voters and their positions on the death penalty.

Party	Death Penalty	
	Favor	Oppose
Republican	0.26	0.04
Democrat	0.12	0.24
Other	0.24	0.10

- What's the probability that a randomly chosen voter favors the death penalty?
- What's the probability that a Republican favors the death penalty?
- What's the probability that a voter who favors the death penalty is a Democrat?
- A candidate thinks she has a good chance of gaining the votes of anyone who is a Republican or in favor of the death penalty. What portion of the voters is that?

13. **First lady, take 2.** Look again at the data from the Gallup survey on first ladies in Exercise 7.

- If we select a respondent at random, what's the probability we choose a person between 18 and 29 who picked Clinton?
- Among the 18- to 29-year-olds, what is the probability that a person responded "Clinton"?
- What's the probability that a person who chose Clinton was between 18 and 29?
- If the person responded "Bush," what is the probability that they are over 65?
- What's the probability that a person over 65 preferred Bush?

Response	Age Group				Total
	18-29	30-49	50-64	Over 65	
Clinton	135	158	79	65	437
Bush	77	237	112	92	518
Equally/Neither/ No opinion	5	21	14	10	50
Total	217	416	205	167	1005

27. **First lady, final visit.** In Exercises 7 and 13 we looked at results of a Gallup Poll that asked people whether they thought Laura Bush or Hillary Clinton better fits their idea of a first lady.

- Are being under 30 and being over 65 disjoint? Explain.
- Are being under 30 and being over 65 independent? Explain.
- Are answering "Clinton" and being over 65 disjoint? Explain.
- Are answering "Clinton" and being over 65 independent? Explain.

19. **Batteries.** A junk box in your room contains a dozen old batteries, five of which are totally dead. You start picking batteries one at a time and testing them. Find the probability of each outcome.

- The first two you choose are both good.
- At least one of the first three works.
- The first four you pick all work.
- You have to pick 5 batteries in order to find one that works.

8. **Birth order.** A survey of students in a large Introductory Statistics class asked about their birth order (first or only child, second, etc.) and which college of the university they were enrolled in. Here are the data:

College	Birth Order		
	First or only	Second or later	Total
Arts & Sciences	34	23	57
Agriculture	52	41	93
Human Ecology	15	28	43
Other	12	18	30
Total	113	110	223

Suppose we select a student at random from this class.

- What is the probability we select a Human Ecology student?
- What is the probability that we select a first-born student?
- What is the probability that the person is first-born and a Human Ecology student?
- What is the probability that the person is first-born or a Human Ecology student?

14. **Birth order, take 2.** Look again at the data about birth order of Intro Stats students and their choices of colleges shown in Exercise 8.

- If we select a student at random, what's the probability the person is an Arts and Sciences student who is a second child (or more)?
- Among the Arts and Sciences students, what's the probability a student was a second child (or more)?
- Among second children (or more), what's the probability the student is enrolled in Arts and Sciences?
- What's the probability that a first or only child is enrolled in the Agriculture College?
- What is the probability that an Agriculture student is a first or only child?

28. **Birth order, finis.** In Exercises 8 and 14 we looked at the birth orders and college choices of some Intro Stats students.

- Are enrolling in Agriculture and Human Ecology disjoint? Explain.
- Are enrolling in Agriculture and Human Ecology independent? Explain.
- Are being first-born and enrolling in Human Ecology disjoint? Explain.
- Are being first-born and enrolling in Human Ecology independent? Explain.

35. **Luggage.** Leah is flying from Boston to Denver with a connection in Chicago. The probability her first flight leaves on time is 0.15. If the flight is on time, the probability that her luggage will make the connecting flight in Chicago is 0.95, but if the first flight is delayed, the probability that the luggage will make it is only 0.65.

- Are the first flight leaving on time and the luggage making the connection independent events? Explain.
- What is the probability that her luggage arrives in Denver with her?

37. **Late luggage.** Remember Leah (Exercise 35)? Suppose you pick her up at the Denver airport, and her luggage is not there. What is the probability that Leah's first flight was delayed?