1. What is the probability that a student plays soccer, given that they are female?

	Male	Female
Basketball	54	40
Soccer	36	61
Volleyball	10	12

113

P(soccer | female)

$\frac{61}{113} = 54\%$

2. Use the table to find each probability.

Projected Number of Degree Recipients in 2010 (thousands)

Degree	Male	Female	
Associate's	245	433	678
Bachelor's	598	858	1456

Source: U.S. National Center for Education Statistics

843   1291   2134

a. P(The recipient is male). $\frac{843}{2134} = 39.5\%$

b. P(The degree is a bachelor's) $\frac{1456}{2134} = 68.2\%$

c. P(The recipient is female, given that the degree is an associate's) $\frac{433}{678} = 63.9\%$

P(female | assoc)

d. P(The degree is not an associate's given that the recipient is male)

P(not assoc | male) $\frac{598}{843} = 70.9\%$

3. Eileen and Ben are away at college. They visit home on random weekends, Eileen with a probability of .2 and Ben with a probability of .25. On any given weekend, what is the probability that:

a. both will visit? $(.25)(.2) = .05$

b. neither will visit? $(.75)(.8) = .60$

c. Eileen will visit but Ben will not? $(.2)(.75) = .15$

d. Ben will visit but Eileen will not? $(.25)(.8) = .2$

e. at least one will visit?   P(A) + P(B) - P(A and B)

$.2 + .25 - .05 = .4$

1 - P(neither)

1 - .6

.4

4. Kara estimates that the probability of her getting an A in math is .92 and an A in history is .88. What is her probability of getting:

a. an A in math and history? $P(A \text{ and } B) = (.92)(.88) = .81$

b. no A in math? .08

c. no A in history? .12

d. no A in math or history? $P(A \text{ and } B) = (.08)(.12) = .01$

e. at least one A? $P(\text{at least } 1) = 1 - P(\text{no } A)$
$$= 1 - .01$$
$$= .99$$

5. Doc is a regular customer at the Waterfront Coffee Shop. The owner has figured that Doc's probability of ordering ham is .8 and his probability of ordering eggs is .65. What is the probability that:

a. he does not order ham? .2

b. he does not order eggs? .35

c. he orders neither ham nor eggs? $P(\text{not } A \text{ and } B) = (.2)(.35) = .07$

d. he orders ham and eggs? $P(A \text{ and } B) = (.8)(.65) = .52$

e. he order at least one, ham or eggs?
$$1 - .07 = .93$$

6. Our baseball teams play on Friday. The probabilities that they will win are: .7 Varsity, .6 JV, and .8 Freshman. What is the probability that:

a. All three win? $P(A \text{ and } B \text{ and } C) = (.7)(.6)(.8) = 33.6\%$

b. All three lose? $P(\text{not } A \text{ and } \text{not } B \text{ and } \text{not } C) = (.3)(.4)(.2) = 2.4\%$

c. At least one team wins?
$$1 - .024 = 97.6\%$$