5.16  a. You would expect a success rate of 76.5 - 3.95(10) = 37%.
    b. The slope of -3.95 shows when the distance increase by a foot, the percent success decreases by about 3.95%.

5.17  a. At 2 ft., the predicted success rate is 76.5 - 3.95(2) = 68.6%, well below the observed success rate of 93.3%. At 20 ft., the predicted success rate is 76.5 - 3.95(20) = -2.5%, much different than the observed rate of 15.8% and also an impossible value because a success rate cannot be negative.
    b. The equation predicts success rates that are much too low in both cases, indicating that the true relationship is probably not linear much beyond the range of 5 feet to 15 feet.

5.27  a. Graph 2 shows the strongest relationship while Graph 3 shows the weakest.
    b. Graph 1: +0.6; Graph 2: -0.9; Graph 3: 0; Graph 4: +0.3.

5.35  No, this does not mean that increasing a person’s income will cause him or her to drink more beer. The observed relationship probably results from how economic inflation and population growth influence both variables through the years. Note also that we only have data aggregated for the entire country, which is not directly relevant to individual behavior.

7.1 Random Circumstance: Flight arrival time for a randomly selected flight on one of the top ten U.S. airlines during that time period.
    ✓ Flight arrives on time (or early) with probability .761
    ✓ Flight arrives late with probability .239

7.2  1000/125000 =1/125, or .008

7.3  1/16 = 0.0625. After four students have been selected, sixteen remain as candidates, each with an equal chance to be picked.

7.4  a. Yes.
    b. Yes.
    c. Yes.
    d. No. A probability cannot be greater than 1.
    e. No. A probability cannot be negative.

7.5  a. Relative frequency probability; the proportion of times the outcome occurs in the long run.
    b. Personal probability.
    c. Relative frequency probability; proportion of a “large” random sample that falls into the category of interest.

7.6  a. A car dealer has noticed that 1/25 (or .04) of new car buyers will return their cars for warranty service within the first month.
    b. A car dealer has noticed that 4% of new car buyers return their cars for warranty service within the first month.
    c. A car dealer has noticed that the probability is 1/25 (or .04) that a new car buyer will return the car for warranty service within the first month.