Probability

3.2 Basic Probability

1. The divorce rate in America varies depending on several factors. For example, first marriages have a lower divorce rate than second or third marriages. In a recent study, 320 third marriages (i.e.-marriages involving at least one partner who had been married twice before) were analyzed. Of the 320 marriages analyzed, 235 of the marriages ended in divorce. Based on this data, what is the probability that a randomly selected third marriage will end in divorce?

2. A study published in consumer reports looked at chicken meat sold at major retailers. The study included meat from factory farmed birds, organically raised birds, and antibiotic-free birds. The results showed that 457of the sampled raw chickens were contaminated with either campylobacter or salmonella bacteria (both potentially deadly). Ninety-three of the sampled raw chickens did not have these dangerous types of bacteria. Use this data to estimate the probability that a randomly purchased portion of chicken meat will be infected with dangerous bacteria.

3. In a study of 175 university students from an East coast university with a diverse student body, it was revealed that 152 of them had a Facebook account. Use this data to estimate the probability that a randomly selected university student will not have a Facebook account.

Answers:

1. $P(D) = \frac{235}{320} \approx 0.734$ $\frac{235}{320} \approx 0.734$

2. $P(B) = \frac{457}{457+93} \approx 0.831$

3. $P(\bar{F}) = \frac{23}{175} \approx 0.131$