

2. Prison and Plea Find the probability of being sentenced to prison, given that the subject entered a plea of guilty.

3. Prison and Plea Find the probability of being sentenced to prison, given that the subject entered a plea of not guilty.

4. Prison and Plea After comparing the results from Exercises 2 and 3, what do you conclude about the wisdom of entering a guilty plea?

5. Prison and Plea If 1 of the subjects is randomly selected, find the probability of selecting someone who was sentenced to prison or entered a plea of guilty.

6. Prison and Plea If 2 different study subjects are randomly selected, find the probability that they both were sentenced to prison.

7. Prison and Plea If 2 different study subjects are randomly selected, find the probability that they both entered pleas of not guilty.

8. Prison and Plea If 1 of the subjects is randomly selected, find the probability of selecting someone who entered a plea of not guilty or was not sentenced to prison.

9. Prison and Plea If 1 of the 1028 subjects is randomly selected, find the probability of selecting someone who was sentenced to prison and entered a guilty plea.

10. Prison and Plea If 1 of the subjects is randomly selected, find the probability of selecting someone who was not sentenced to prison and did not enter a plea of guilty.

11. Red Cars Use subjective probability to estimate the probability of randomly selecting a car and getting one that is red.

12. Blue Eyes About 35% of the population has blue eyes (based on a study by Dr. P. Sorita Soni at Indiana University).

a. If someone is randomly selected, what is the probability that he or she does not have blue eyes?

b. If four different people are randomly selected, what is the probability that they all have blue eyes?

c. Would it be unlikely to randomly select four people and find that they all have blue eyes? Why or why not?

13. National Statistics Day

a. If a person is randomly selected, find the probability that his or her birthday is October 18, which is National Statistics Day in Japan. Ignore leap years.

b. If a person is randomly selected, find the probability that his or her birthday is in October. Ignore leap years.

c. Estimate a subjective probability for the event of randomly selecting an adult American and getting someone who knows that October 18 is National Statistics Day in Japan.

d. Is it unlikely to randomly select an adult American and get someone who knows that October 18 is National Statistics Day in Japan?

14. Composite Sampling for STDs Currently, the rate for sexually transmitted diseases (STDs) is 213 per 100,000 (based on data from the Centers for Disease Control and Prevention). When testing for the presence of STDs, the Acton Medical Testing Company saves money by combining blood samples for tests. The combined sample tests positive if at least one person is infected. If the combined sample tests positive, then the individual blood tests are performed. In a test for STDs, blood samples from 10 randomly selected people are combined.