**Section 12.3**

**Activity 1**

Suppose five cards are drawn from a standard deck of playing cards without replacement.

* What is the size of the sample space?
* What is the probability of getting exactly three spades?
* What is the probability of getting three cards of the same suit?
* What is the probability of getting three of a kind?
* What is the probability of getting a full house?

**Activity 2**

Github has server farms on the east coast and the west coast.

* The east coast farm uses 12 HP servers and 7 Cisco servers
* The west coast farm uses 8 HP servers and 19 Cisco servers
1. What is the probability that your project will be stored on an HP server?
2. If you know your project is stored on an HP server, what is the probability it is being stored on the east coast?

**Activity 3**

* A drug-screening test is used on a large population of people, if which 4% actually use drugs.
* The test has a 3% false positive rate. That means that 3% of people who don’t use drugs will test positive anyways.
* The test has a 2% false negative rate. That means that 2% of people who use drugs will still test negative.
1. What is the probability that a randomly chosen person who tests positive for drugs actually uses drugs?
2. What is the probability that a randomly chosen person who tests negative for drugs does not use drugs?