

1. You have a jar with 10 red balls, 9 blue balls, and 8 white balls. You pick three balls. Respond to the following:
 - (a) What is the probability that you selected one of each color?
 - (b) What is the probability that you selected two red balls and one blue ball?
 - (c) What is the probability that all three balls are of the same color?

2. You toss a pair of dice. Respond to the following:
 - (a) Give the sample space.
 - (b) What is the probability of getting a sum that is divisible by 3?
 - (c) What is the probability of getting a 6 on at least one die?
 - (d) What is the probability of winning the game of craps with a point of 6?

3. In a certain neighborhood, the probability that a high school student has a part-time job is .12. In a group of 20 students, what is the probability that at least 2 students have a part time job?

4. The following describes a random sample of college undergraduates by year and their smoking habits

	Freshmen	Sophomores	Juniors	Seniors
Smoker	25	30	30	15
Non-smoker	30	25	20	35

- a) What is the probability that the student is a smoker?
- b) Given that the student is not a freshman, what is the probability that the student is a non-smoker?
- c) What is the probability that the student is a junior or a smoker?
- d) What is the probability that the student is a sophomore and a smoker?
- e) Given that the student is a smoker, what is the probability that the student is a freshman or sophomore?
- f) What is the probability that the student is a junior?

5. Given: $f(x) = \frac{x+1}{20}$ for $x = 1, 2, 3, 4, 5$. Respond to the

following:

(a) Clearly explain how this function is a probability density function (pdf).

(b) Find the mean, variance, and standard deviation.

(c) Draw a probability histogram. Clearly label your work.

6. The average number of people waiting in a checkout line at a large store is four every two minutes. At a given minute, what is the probability that there are at most two people waiting?

7. Alice, Bonnie, and Clyde are shooting arrows at a target. Alice hits the target with probability of .3; Bonnie hits the target with probability of .4; Clyde hits the target with probability .35.

(a) One random observation is made and the target is hit. What is the probability that Clyde shot the arrow?

(b) One shot is observed but the target is not hit. What is the probability that Bonnie shot the arrow?