

Part 1

For exercises 1-7, determine whether each is a DISCRETE or CONTINUOUS random variable.

1. The speed of a jet airplane.
2. The number of cheeseburgers a fast-food restaurant serves each day.
3. The number of people who play the state lottery each day.
4. The weight of a Siberian tiger.
5. The time it takes to complete a marathon.
6. The number of mathematics majors at a college.
7. The blood pressures of all patients admitted to a hospital on a specific day.
8. From past experience, a company has found that in cartons of transistors, 92% contain no defective transistors, 3% contain one defective transistor, 3% contain two defective transistors, and 2% contain three defective transistors. Find the mean, variance, and standard deviation for the defective transistors.
9. The probabilities that a player will get 5 to 10 questions right on a trivia quiz are shown below. Find the mean, variance, and standard deviation for the distribution.

X	5	6	7	8	9	10
P(X)	.05	.2	.4	.1	.15	.1

Part 2

1. Which of the following are binomial experiments or can be reduced to binomial experiments?
 - a. Surveying 100 people to determine if they like Sudsy Soap
 - b. Tossing a coin 100 times to see how many heads occur
 - c. Drawing a card with replacement from a deck and getting a heart
 - d. Asking 100 people which brand of tissues they use
 - e. Testing four different brands of aspirin to see which brands are effective
 - f. Testing one brand of aspirin by using 10 people to determine whether it is effective
 - g. Asking 100 people if they smoke
 - h. Checking 1000 applicants to see whether they were admitted to White Oak College
 - i. Surveying 300 prisoners to see how many different crimes they were convicted of
 - j. Surveying prisoners to see whether this is their first offense
2. A student takes a 20-question true/false exam and guesses on each question. Find the probability of passing if the lowest passing grade is 15 correct out of 20. Would you consider this event likely to occur? Explain your answer.
3. A survey found that 21% of Americans watch fireworks on television on July 4. Find the mean, variance, and standard deviation of the number of individuals who watch fireworks on television on July 4 if a random sample of 1000 Americans is selected.
4. A survey found that 25% of pet owners had their pets bathed professionally rather than do it themselves. If 18 pet owners are randomly selected, find the probability that exactly 5 people have their pets bathed professionally.