20.

Although controversial and the subject of some recent lawsuits, some human resource departments administer standard IQ tests to all employees. The Stanford-Benet test scores are well modeled by a Normal model with mean 100 and standard deviation 16. If the applicant pool is well modeled by this distribution, a randomly selected applicant would have what probability of scoring in the following regions?

1. 100 or below?
2. Above 148
3. Between 84 and 116
4. Above 131

22.

Although controversial and the subject of some recent lawsuits, some human resource departments administer standard IQ tests to all employees. The Stanford-Benet test scores are well modeled by a Normal model with mean 100 and standard deviation 16. What cut off value would separate the

1. Lowest 0.15% of all applicants?
2. Lowest 16%?
3. Middle 95%?
4. Highest 2.5%?

46.

Can we use probability models based on Bernoulli trials to investigate the following situations? Explain.

1. You are rolling 5 dice. How likely is it to get at least two 6’s to win the game?
2. You survey 500 potential customers to determine their color preference.
3. A manufacturer recalls a doll because about 3% have buttons that are not properly attached. Customers return 37 of these dolls to the local toy store. How likely are they to find buttons not properly attached?
4. A city council of 11 Republicans and 8 Democrats pick a committee of 4 at random. How likely are they to choose all Democrats?
5. An executive reads that 74% of employees in his industry are dissatisfied with their jobs. How many dissatisfied employees can he find among the 481 employees in his company?

50.

College students are a major target for advertisements for credit cards. At a university, 65% of students surveyed said that they had opened a new credit card account in the past year. If that percentage is accurate, how many students would you expect to survey before finding one who had not opened an account in the past year.

56.

Only 4% of people have Type AB blood. A bloodmobile has 12 vials of blood on a rack. If the distribution of blood types at this location is consistent with the general population, what’s the probability they find AB blood in:

1. None of the 12 samples?
2. At least 2 samples?
3. 3 or 4 samples?