

1. Hunters are encouraged to wear orange when hunting to prevent being mistaken for one of the animals. In a study of 123 randomly chase hunters who were injured, it was determined that 6 were wearing an orange vest. Based on this sample, what is the probability of selecting someone from this study who was wearing an orange vest? Does this provide evidence that wearing an orange vest can help decrease your probability of being injured when hunting? Why or why not?

2. A carton contains 12 eggs. 3 of the eggs are cracked and 1 egg is a bad discolored one.
 - a. What is the probability of randomly selecting a cracked egg?

 - b. What is the probability of randomly selecting a good egg?

 - c. What is the probability of randomly selecting a cracked egg or a good egg?

 - d. What is the probability of randomly selecting a cracked egg and the bad egg for a 2 egg omelet?

 - e. What is the probability of randomly selecting two good eggs and a cracked egg for a 3 egg omelet?

3. Four students who live together oversleep on the day of the midterm. They contact their professor and tell her they are going to be late due to a flat tire. She allows them to make up the test but adds the following question to the end of the test:

"What tire went flat on the car?"

Since the students really did not have a flat tire, what is the probability that all four students will select the same tire?

4. In a study of facial behavior, people in a control group are timed for eye contact in a 5 minute period. Their times are normally distributed with a mean of 184 s and a standard deviation of 55 s. (based on real data)

a. It has been found that nonparanoid schizophrenics have an eye contact time of 230 s or above. What is the probability that someone could be selected at random from the population and found to have an eye contact time of 230 s?

b Paranoid schizophrenics comprise the upper 2% of the population. What is the eye contact time associated with that percentile?

4. High school students are faced with taking the ACT or the SAT tests to measure their readiness to start college. Quantitative SAT scores have a mean of 1509 and a standard deviation of 312 while quantitative ACT scores have a mean of 21.1 and a standard deviation of 5.

a. A student takes the ACT and receives a score of 35 while another takes the SAT and receives a score of 2202. Which student has scored higher relatively speaking?

b. In order to get into MIT, you need to be in the top 20% of all students who take the ACT. What is the ACT score that a student must obtain to qualify for MIT?

c. A student receives a SAT score of 1990. What percentile is the student in?