Pop Quiz

1. The amount of drying time for the paint applied to a plastic component part is thought to be uniformly distributed between 30 and 60 minutes. Currently, the automated process selects the part from the drying bin after the part has been there for 50 minutes. Based on this, What is the probability that a part selected will not be dry?

2. A class takes an exam where the average time to complete the exam is normally distributed with a time of 40 minutes and standard deviation of 9 minutes. If the class lasts 1 hour, what probability of the students will finish the exam after 60 minutes?

3. Watersports Rental at Flathead Lake rents jet skis and power boats for day use. Each piece of equipment has a clock that records the time that it was actually in use while rented. The company has observed over time that the distribution of time used is normally distributed with a mean of 3.6 hours and a standard deviation equal to 1.2 hours. Watersports management has decided to give a rebate to customers who use the equipment for less than 2.0 hours. Based on this information, what is the probability that a customer will get the rebate?

4. According to the statistics of the Police Department, there were 107,606 violations of drunk driving from January to November 2014, 62,950 cases transferred by the police, and 145 deaths caused by drunk driving. In addition, statistics show that 82% of deaths in drunk driving incidents are fatal. Now, if you take 18 drunk drivers, what is the probability of a 12 deaths caused by drunk driving?

5. The car wash owner cares about the number of vehicles washing in half an hour. It is assumed from the past information that the average number of vehicles in 30 minutes is 5, what is the probability of having 3 cars in 30 minutes? what is the probability of having 3 cars in 30 minutes? and what is the probability of having 1 car in 12 minutes?

6. A certain company's customers is made up of 43% women and 57% men. An aggressive marketing campaign results in an increase of women customers to 46%, according to a sample survey of 50 customers. If the company hadn't run the campaign, what is the probability that 46% of customers are women? Was the campaign worth it?
7. The honey produced on a farm is normally distributed with an average weight of 500 grams. A food inspection center selects 16 bottles of honey from the farm. The probability of 16 bottles of honey mean which is more than 510 grams is known to be 0.048, then what is the standard deviation of 16 bottles of honey?

8. A toy manufacturer will ship the finished product in units of 1000 per batch. Before shipment, 20 toys will be randomly selected for each batch. If more than

19 (including 19) pass the inspection, they can be shipped out smoothly; otherwise, the 1000 toys need to be returned to the quality control department for re-examination. Suppose there are 60 defective products in a certain batch of toys. What is the probability that these toys will not be shipped smoothly?

9. According to past information, 5 out of an average of 100 passengers in the airline's reservations are temporarily unable to report to the flight (assuming different passengers will report to each other independently). Suppose the airline has 96 seats for a flight. In order to avoid the losses caused by unreported passengers, the airline allows 100 passengers to book a seat. What is the probability that there will be insufficient seats?

10. The average calorie of a can of beverage is known to be 105 (calorie) with a standard deviation of 4 (calorie). Today, 100 bottles of this canned beverage are randomly selected for inspection. What is the probability that the average calorie of 100 bottles of canned beverages is between 106 and 108?