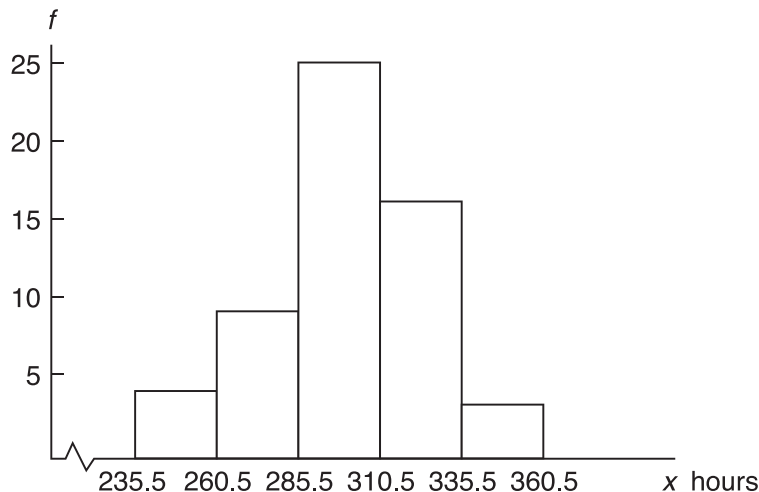


Statistics Test 1

Number of questions—5

Directions: Solve each of the following problems using separate paper, while clearly indicating each problem number when solving. Irrelevant work will detract from your score, while answers without work shown will be awarded no credit. Answers with partially correct work will receive partial credit. Each problem is worth 20 points. You must work alone, but you may use a graphing calculator as a supplement to your own work if you indicate the steps used. You may not use a phone, computer, computational intelligence, AI, or other tools to assist you in solving the problems, nor may you have any of these devices in your possession while taking this test.

1. Write the sample type that best fits each description. Choose from simple random, stratified, cluster, systematic, and convenience.
 - (a) (4 pts) A cafeteria worker asked everyone who ordered food from them what kind of pasta they prefer.
 - (b) (4 pts) A contestant on a game show spun a wheel 4 times to determine what prizes they would get.
 - (c) (4 pts) A city planner randomly selected three neighborhoods in Brooklyn to have every intersection in the selected neighborhoods checked for compliance.
 - (d) (4 pts) A school district employee divided students up by their schools and then selected five students from each school to be tested for lice.
 - (e) (4 pts) A car salesman numbered every car in her lot and then selected every third car.
2. How long does it take to finish the 1161-mile Iditarod Sled Dog Race from Anchorage to Nome, Alaska? Finish times (to the nearest hour) for dogsled teams are shown below.



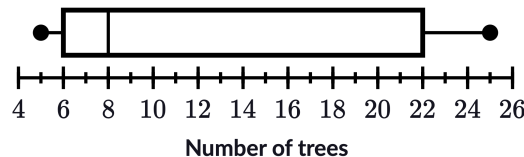
- (a) (5 pts) What distribution shape best describes this histogram?
- (b) (5 pts) How many dogsled teams finished between 286 and 310 hours? Give your best estimate.
- (c) (5 pts) How many dogsled teams were there in total? Give your best estimate.
- (d) (5 pts) What percentage of dogsled teams took 311 hours or longer to finish? Give your best estimate.
3. Driving under the influence of alcohol (DUI) is a serious offense. The following data give the ages of a random sample of 30 drivers arrested while driving under the influence of alcohol. This distribution is based on the age distribution of DUI arrests given in the *Statistical Abstract of the United States* (112th edition).

46 16 41 26 22 33 30 22 36 34
 63 21 26 18 27 24 31 38 26 55
 31 47 27 43 35 22 64 40 58 20

- (a) (10 pts) Make a stem-and-leaf display with the data. Be sure to indicate the scale.
- (b) (10 pts) What distribution shape best fits the data? Explain your answer.
4. Given the sample data

24 57 42 36 28

- (a) (5 pts) Find the mean of the data.
- (b) (5 pts) Find the variance of the data, rounded to the nearest hundredth.
- (c) (5 pts) Find the standard deviation of the data, rounded to the nearest hundredth.
- (d) (5 pts) Find an interval in which at least 93.8% of the data fall.
5. Here is a box plot that summarizes the number of new trees a city is planting in each neighborhood this year.



- (a) (5 pts) Find the range of the data.
- (b) (5 pts) Find the interquartile range of the data.
- (c) (5 pts) Find the median of the data.
- (d) (5 pts) What percent of neighborhoods are having fewer than 8 trees planted?