

Algebra 1 – Statistics Questions on Distribution (5 number)

Name _____

Goals: Min, Q1, Median, Q3, Max, IQR, Range, Dot Plots, Box Plots [IXL N 1, 2, 5]

Notes:

Distribution: Describes the values in the data and how often they occur.

Minimum: lowest value

Maximum: highest value

Range: distance between the min and max $\text{range} = \text{max} - \text{min}$

Quartile 1: splits the data so that 25% is under this value and 75% is over this value

Median (Quartile 2): splits the data so that 50% is under this value and 50% is over this value (middle)

Quartile 3: splits the data so that 75% is under this value and 25% is over this value

IQR (Interquartile Range): distance between Q1 and Q3, describes the middle 50% $\text{IQR} = \text{Q3} - \text{Q1}$

Five Number Summary: Min, Q1, Median, Q3, Max

Graph 1 – Dot Plot: place an x above a number line for each data value. Shows shape.

Graph 2 – Box Plot: Draw a line from the min to the max. This line represents the range.

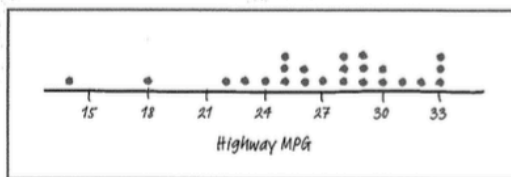
On this line, draw a box that shows Q1, the Median, and Q3. The box represents the middle 50%.

The table below displays the EPA estimates of highway gas mileage in miles per gallon (mpg) for a sample of 24 model year 2009 midsize cars.

Model	Mpg	Model	Mpg	Model	Mpg
Acura RL	22	Dodge Avenger	30	Mercury Milan	29
Audi A6 Quattro	23	Hyundai Elantra	33	Mitsubishi Galant	27
Bentley Arnage	14	Jaguar XF	25	Nissan Maxima	26
BMW 528i	28	Kia Optima	32	Rolls Royce Phantom	18
Buick Lacrosse	28	Lexus GS 350	26	Saturn Aura	33
Cadillac CTS	25	Lincoln MKZ	28	Toyota Camry	31
Chevrolet Malibu	33	Mazda 6	29	Volkswagen Passat	29
Chrysler Sebring	30	Mercedes-Benz E350	24	Volvo S80	25

Source: 2009 Fuel Economy Guide, from the U.S. Environmental Protection Agency's Web site at www.fueleconomy.gov.

Here is a dotplot of the data:



Find the following statistics for the mpg:

Five number summary:

Range:

Interquartile range:

Apply Your Knowledge To The Class Data 4

Find the following statistics for the class gpa:

Five number summary:

Range:

Interquartile range:

The students in the school were asked how long they could hold their breath in seconds. The box plots to the right show the results of the study where

1 = freshman, 2 = sophomores,
3 = juniors, 4 = seniors.

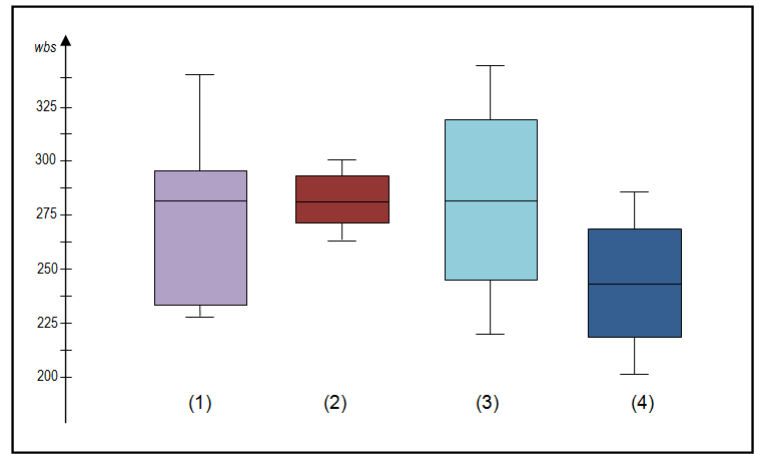
Describe the Five Number Summary for Freshman.

Describe the range for the sophomores

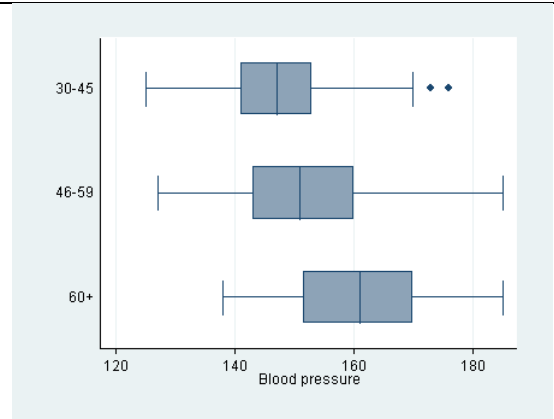
Describe the interquartile range for the juniors

Which group had the lowest median?

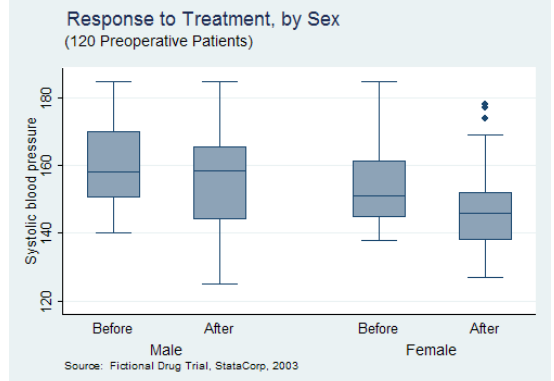
Which group had the least variability?



Describe the affect age has upon blood pressure. Use at least 3 statistics to back up your statements.



The goal of the drug was to lower blood pressure. For which gender was the drug more effective? Use at least 3 statistics to back up your statements.



Apply Your Knowledge To The Class Data 5

Find the following statistics for the number of states your classmates have visited:

Five number summary

Range:

Interquartile range:

Create a Box Plot:

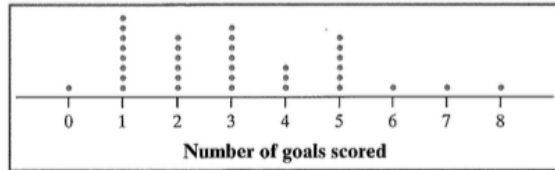


FIGURE 1.9 A dotplot of goals scored by the U.S. women's soccer team in 2004.

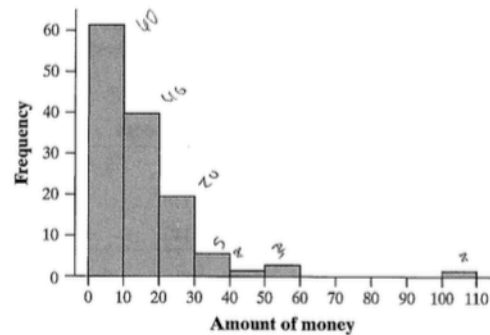
T1.4. Earthquake intensities are measured using a device called a seismograph, which is designed to be most sensitive to earthquakes with intensities between 4.0 and 9.0 on the Richter scale. Measurements of nine earthquakes gave the following readings:

4.5 L, 5.5 H, 8.7, 8.9, 6.0 H, 5.2

where L indicates that the earthquake had an intensity below 4.0 and an H indicates that the earthquake had an intensity above 9.0. The median earthquake intensity of the sample is

- (a) 5.75. (c) 6.47. (e) Cannot be determined.
 (b) 6.00. (d) 8.70.

Questions T1.5 and T1.6 refer to the following setting. In a statistics class with 136 students, the professor records how much money (in dollars) each student has in his or her possession during the first class of the semester. The histogram shows the data that were collected.



T1.5. The percentage of students with less than \$10 in their possession is closest to
 (a) 30%. (b) 35%. (c) 50%. (d) 60%. (e) 70%.

Apply Your Knowledge To The Class Data 6

Find the following statistics for the hours of sleep:

Five number summary

Range:

Interquartile range:

Create a Box Plot and Dot Plot: