

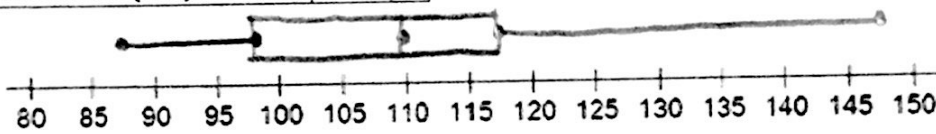
Math 7/7-Plus Unit 8 Statistics Review: Box-Plots, Central Tendency, and MAD (1)

Find the five-number summary and create a box and whisker plot from the following set of data.

1. 92, 89, 124, 114, 98, 118, 115, 106, 101, 149

a.) Five-Number Summary 89 98 110 118 149 b.) Box-and-Whisker Plot

| | |
|---------------------|-----|
| Minimum (LE) | 89 |
| Lower Quartile (Q1) | 98 |
| Median | 110 |
| Upper Quartile (Q3) | 118 |
| Maximum (UE) | 149 |



- c.) What percent of data lies between 98 and 110? 1c. 25%
- d.) What percent of data lies between 98 and 118? 1d. 50%
- e.) What is the Inter-quartile range (IQR)? $118 - 98$ 1e. 20
- f.) What is the mean of all the data in problem 1? $1106/10$ 1f. 110.6

2. Use the data table below to find the Mean and the Mean Absolute Deviation (MAD). Round to nearest tenth.

| Game and Winning School | Points Scored |
|------------------------------------|---------------|
| Alamo Bowl, Penn State | 24 |
| Cotton Bowl, Missouri | 38 |
| Fiesta Bowl, W. Virginia | 48 |
| Gator Bowl, Texas Tech | 31 |
| Holiday Bowl, Texas Tech | 52 |
| Liberty Bowl, Mississippi State | 10 |
| New Orleans Bowl, Florida Atlantic | 44 |
| Orange Bowl, Kansas | 24 |
| Outback Bowl, Tennessee | 21 |
| Rose Bowl, USC | 49 |
| Sugar Bowl, Georgia | 41 |

| Data | Data - Mean | Absolute Value |
|------|-------------|----------------|
| 24 | $24 - 34.7$ | 10.7 |
| 38 | $38 - 34.7$ | 3.3 |
| 48 | $48 - 34.7$ | 13.3 |
| 31 | $31 - 34.7$ | 3.7 |
| 52 | $52 - 34.7$ | 17.3 |
| 10 | $10 - 34.7$ | 24.7 |
| 44 | $44 - 34.7$ | 9.3 |
| 24 | $24 - 34.7$ | 10.7 |
| 21 | $21 - 34.7$ | 13.7 |
| 49 | $49 - 34.7$ | 14.3 |
| 41 | $41 - 34.7$ | 6.3 |

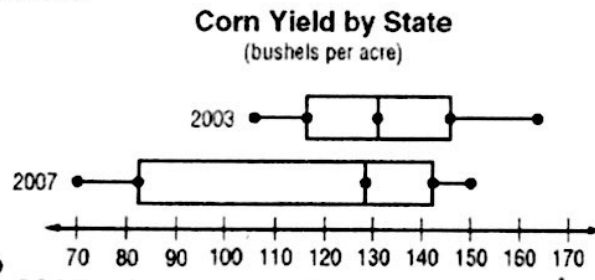
$382/11 = 34.7$
mean

$127.3/11 = 11.6$
MAD

Mean: 34.7

Mean Absolute Deviation: 11.6

3. Use the double box-and-whisker plot below to answer 3a-f with TRUE for a true statement and FALSE for a false statement.



- a. True The range in 2007 is larger than the range in 2003. ⁸⁰ ₆₀
- b. False Since the 2007's box-and-whisker plot is longer, there is more data for 2007.
- c. True Overall, 2003 was a better year for corn production.
- d. True The inter-quartile range of 2007 is greater than 2003.
- e. False The MAD for 2003 will be greater than the MAD of 2007.
- f. False The bushels of corn production in 2007 were more consistent than in 2003.

4.

40, 28, 24, 37, 43, 26, 39, 36

24, 26, 28, 30, 36, 37, 40, 43

How would an outlier of 80 for the data above affect the mean and median? (Write sentences and be specific! Hint: include the word increase or decrease and a specific value.)

If an outlier of 80 is added to the data set, the mean would increase

If an outlier of 80 is added to the data set, the median would increase

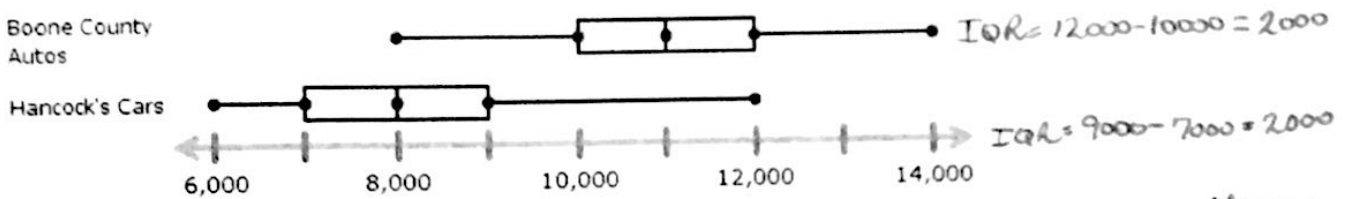
5. Mark must have an average (mean) of at least 90 in math class to be allowed to go on a trip. His scores so far were 93, 90, 89, 88, 92, 86, 88, 91, 83. What score does Mark need on the last assessment to have an average of at least 90?

$x + 93 + 90 + 89 + 88 + 92 + 86 + 88 + 91 + 83 = 90 \cdot 10$ Score Needed: 100

$800 + x = 900$
 $- 800 \quad - 800 \quad x = 100$

6. The Hancock family is going to be buying a used car soon. They research the prices and displayed the data in the box plots below:

Prices for used cars (\$)



- a. What is the difference between their interquartile ranges? None
- b. Which auto dealership box plot is more symmetrical? Boone.
- c. True or False: The MAD for Hancock's cars is significantly larger than Boone's Cars. False
- d. True or False: 75% of Boone County's cars are more expensive than Hancock's Cars. false (25%)